THE MAN'S MAGAZINE

APRIL 1963 A FAWCETT PUBLICATION

35 CENTS

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Steinbeck's Corner

John Steinbeck's *A Ragged Crew* was the first war story published in a long time that didn't have to resort to blood and mayhem to be thrilling and suspenseful. An excellent piece. One of Steinbeck's best.

—Michael Levy
Los Angeles, Calif.

I see you boys did it again. . . . John Steinbeck's first magazine appearance since winning the Nobel Prize. Great timing.

—Manuel Lopez
Chicago, Ill.

The Spider's Nest

I just had to sit down and write in regards to Dan Mannix's article, *My Love Affair with a Tarantula*—(Feb.). It was one of the most unusual and amusing stories I have ever read. He must be quite a guy to keep such pets in his home.

—Julaine Cesar
Ashley, Mich.

His wife is "quite a guy" too. She likes his pets.

Mr. Mannix has a great talent for mixing facts with delightful humor. He had me grinning from ear to ear.

—Jack Minichiello
Somerville, Mass.

Darn your realistic photographs! After my husband had finished the February issue, I gathered up the remains and casually flipped through the pages. As I came upon page 53, the magazine flipped through the air and it took me at least 15 minutes for me to gather courage to pick it up again. I congratulate Albert Fenn on his vivid photos but will wear gloves when the next issue comes out and will turn the pages with a yard stick.

—Judy T. Sternbergs
Cincinnati, Ohio

Re: Dan Mannix's Tarantulas, I have only one loud but thoughtful comment to express . . . . YHKKK!!!!

—Mrs. Frank R. Roberts
Tahoe Valley, Calif.

My wife, who reacts to the sighting of a spider of any size or shape as if she were wired for a three alarm fire, was reluctant to even touch the pages on which the cuddly creatures were illustrated.

—N. D. Flagg
Charlotte, N.C.

I thought your spider story was disgusting.

—Patricia Muffet
New London, Conn.

Success Story

Vance Packard's article *How To Succeed In Business By Really Trying*—(Feb.) was tremendous. He describes my abilities and personal characteristics in exact detail yet has never met me. Utterly fantastic!

—Lee Souza
Buhl, Idaho

Mr. Packard could very well have summed up his article by saying what I have long believed: "The characteristics needed to become a North American executive are the same as those needed to become a South American dictator . . . lust for power, ruthlessness and a total lack of respect for human dignity.

—Dave Lister
Avis, Pa.

Better read the article again, Dave. You've just described how not to succeed in business.

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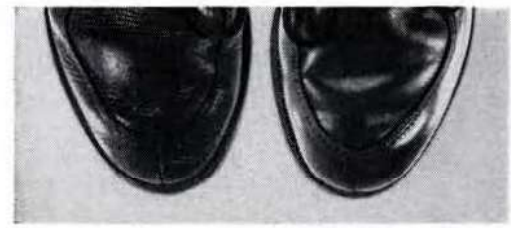

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[*Continued from page 2*]

Looking at Lobbyists

Richard Gehman's article, *The Pressure Peddlers*—(Feb.), was an eye-opener. It's about time somebody pulled down the fence so we could see some of the really shady deals going on in Washington. Your article was no doubt intended to help put a sharp stop to all the double-dealing political "footsies" going on at the public's expense. As one individual, a heartfelt thanks for doing the job that some of our fat-bottomed Congressmen should have done long ago.

—George Kaufmann
Boston, Mass.

Richard Gehman refers to Sen. Bourke B. Hickenlooper of Kansas. That such a mistake could be made is understandable since Rep. Merwyn Coad, while representing Iowa, established residency in Alabama. However, Iowans didn't find this habit-forming and Sen. Hickenlooper's residence is still Cedar Rapids, Iowa, and we proudly claim possession.

—Herb Wallace
Williamsburg, Iowa

Unfortunately, the Senator was misplaced, not lost.

Art Exhibit

While readers are praising your authors on their fine stories, and I agree the stories as a whole are well written, let us not overlook your illustrators who are tops. The illustration that accompanied *The Man Who Invented Terror*—(Feb.) is one of the finest I have seen in many a year. I studied and admired this illustration by Earl Mayan for fully 30 minutes before I read the article. It was a masterpiece.

—Roy O'Neal
Chicago, Ill.

The illustration for *Hemingway's Longest Day*—(Feb.) was exceptionally creative. Who is Blake Hampton and what else has he done?

—Buddy Luther
Houston, Tex.

Mr. Hampton is a young artist whose work appears regularly in many top publications. He has won numerous art awards for his distinctive style and ability.

Ladies Day

I know TRUE is a man's magazine. I am not a man but I enjoy my husband's copy of it more than any magazine we receive.

—Mrs. Wilford Camilli
Boise City, Okla.

I am writing in regard to all the women who write into *Truely Yours*, complaining about any and everything. I don't want to start a battle of the sexes, but in the upper left hand corner of the cover every month are the words, "The Man's Magazine."

—William J. Mammoser
Hamburg, N.Y.

I am single and would like to get married, but only if it could be arranged not as a lifetime contract, but as a yearly deal whereby I could renew my license every year, like an auto license. Think of what this would do to establish the right of a man to be the Master. Imagine the service he would receive weeks before the license is due to expire.

—August Emerson
New York, N.Y.

First step, a learner's permit?

Anchor Man

Regarding your words on "Dutch Treat" (*It's A Man's World*—Feb.), I've decided that I am rather lucky. I'm the proud keeper of a fine, blue-eyed, long-haired blonde beauty who stands 5'2" and weighs in at about 100 pounds. In your excellent wording, she has a 36-inch super structure, 17-inch Plimsoll line, and a 36-inch keel. I'm not nautically minded, but when you see her under full canvas, or bare masted, you appreciate why ships are called "she."

—Paul H. Harrigan
Los Angeles, Calif.

Man Overboard!

Wolf Pangs

I greatly enjoyed your Dan Mannix article on wolves (*The Strange Story of Human Wolves*—Jan.). It is about time that someone

treated this subject seriously. Lycanthropes have been laughed off as ridiculous figments of the imagination for much too long. It is time. It is time that people learned that such things actually exist. Even here, long before the white man came to the New World, several tribes of American Indians had their legends of wolfmen. Members of the Wolf Clan were powerful and feared. When a tribal member defied their wishes, members of the Wolf Clan would don the skins of wolves, complete with claws, and murder the unfortunate who had dared to go against their wishes. It has been said that these wolfmen actually believed themselves to be wolves when they performed their vile deeds. Just recently, Professor Marston Bates of the University of Michigan announced his theory that man has more social behavior traits in common with wolves than he has with apes.

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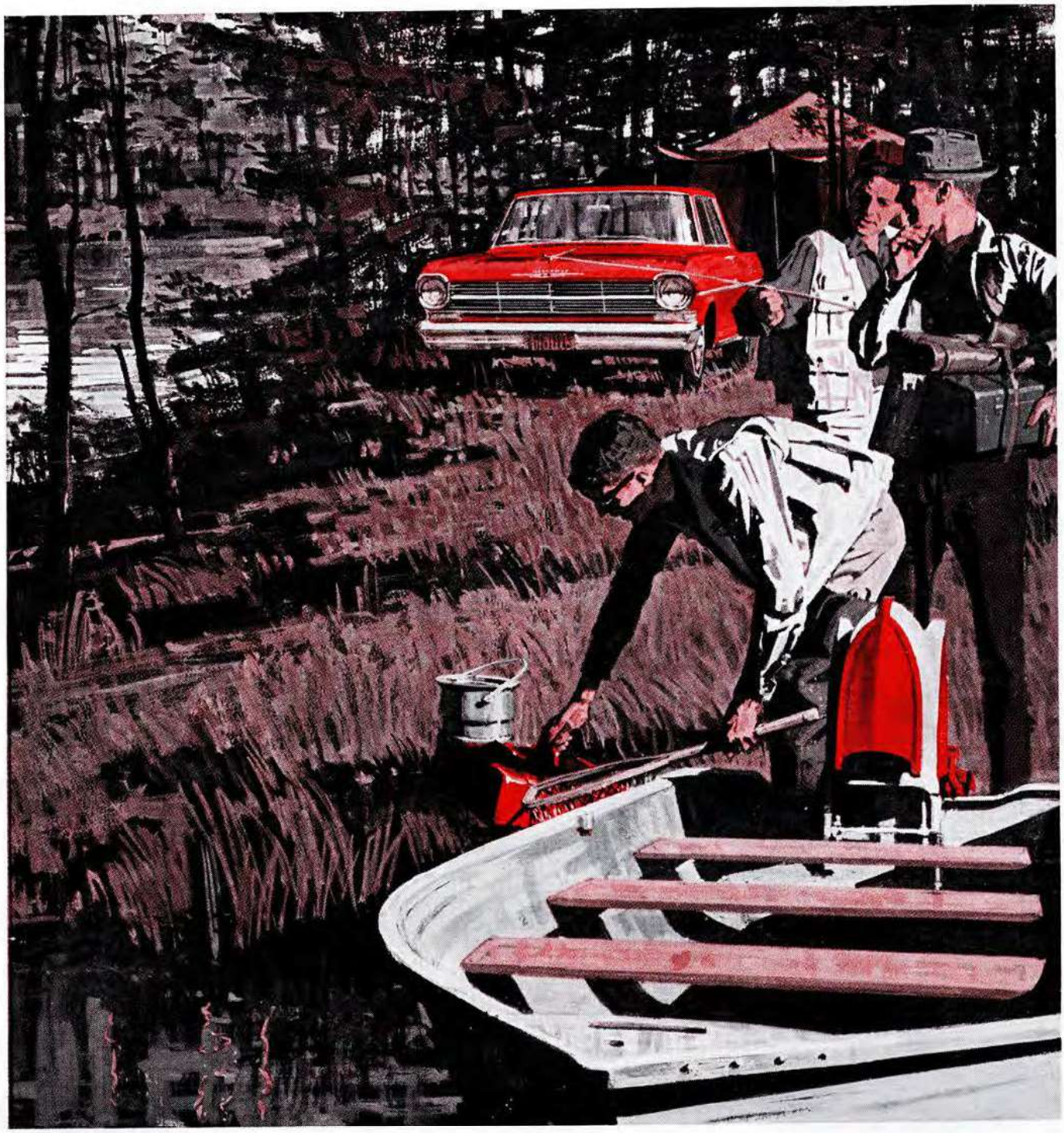

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THE MAN'S MAGAZINE

TRUE

'Tis strange, but true; for truth is always strange —stranger than fiction. **Byron**

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Cover by Sid Latham

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APRIL 1963

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Voted *Rookie of the Year* by The Baseball Writers. A switch-hitter, Tresh hit 20 homers and 93 RBI.

In World Series his 3-run homer won the 5th game and his spectacular catch saved the 7th.

[*Continued from page* 4]

For instance, men and wolves are both hunters, are both loyal to their families, and both associate in groups. These similarities in social behavior could be a heavy contribution to the malady known as lycanthropy.*

—*Dan Hays*
Central Point, Ore.

***A form of mental disorder in which the patient imagines himself to be a wolf.**

". . . . morbid, nauseating appeal."

—*Richard Elderman*
Basin, Wyo.

Icy Railroad

We enjoyed your splendid article on the White Pass & Yukon Route, *Railroad Through a Snowbound Hell*– (Jan.) by Max David. He did a first-class job. Being primarily interested in the development of Alaska and the Yukon Territory all northerners appreciate a good article which highlights their beloved "land of the midnight sun." The Klondike Gold Rush was certainly one of North America's most colorful and historic events. Unfortunately, one often associates "ghost towns" with areas where gold rushes took place. While yesterdays are full of gold rush memories and nostalgia, Alaska and Yukon today are crackling with activity. Whitehorse (Canada's most westerly capital city) has TV and radio stations, paved streets and a parking problem. Dawson (Canada's most westerly city) is the historical hub of the Yukon and attracts thousands of visitors every summer. Last year the Dawson Gold Rush Festival featured the musical comedy, *Foxy*, starring Bert Lahr. As one reporter observed, "How far off Broadway can you get?" Again, thank you for your interest in Alaska and the Yukon Territory and Max David's splendid story on the early days of the White Pass & Yukon.

—*Roy Minter*
Ass't to the President
White Pass & Yukon Route
Vancouver, B.C.

In *Railroad Through A Snowbound Hell*, there is a reference made to a double barreled Winchester repeater. As an amateur gun collector, I am very interested in guns which helped settle our great country's frontiers. However, I have never heard nor read of any combination having been made by Winchester, or any other gun company, of the double barrel and repeating actions.

—*Thomas R. Atkinson*
Bayonne, N.J.

There never was such a rifle and there never will be.

—*R. A. Simonson*
Detroit, Mich.

Double barreled Winchester?

—*L. K. Sims*
Hayward, Calif

Winchester did make a double barreled rifle many years ago on an experimental basis. Only two prototypes were made, however. How Soapy Smith managed to get one is still a mystery.

Doom Prophet Speaks

Your reporter, Robert Lipsyte (*D-Day for the Doom Prophet*—Jan.) overlooked a few facts. He did not mention that on that fateful night a group of reporters came to Patchogue and saw a flash in the still night. Some of them fell right down in the wet mud, pitifully praying, thinking that was the end of everything. They were hardboiled newspapermen. He also forgot to mention that at midnight I was called outside to witness a grand display of the seven rainbow colors all around the horizon. It was something I have never forgotten, and because of that single fact alone I have made it my earnest study to explore the stars and planets, delving into ancient lore of astrology, 32 Paths to Wisdom, and Cabala. As to your reporter having me call Gabriel, that's pure bunk. The great archangel who rules the segment of the Zodiak where I was born is Michael, the Angel of the Sun, not Gabriel. I am now 70 years old and my retirement furnishes me with time to study the past, the present and the future. I predicted the outbreak of World War II almost to the hour. I also announced when Germany would surrender, and the Prophet of Doom was once again right. Again I foresaw that our troops would be in Tokyo the first week in September that same year. Now the Heavens proclaim the glory of God and the stupidity of man in his search for money, power and lust. Castro will be next. Just watch our national gold supply dwindle to a mere trickle more and more each year. Watch the fire-spitting Dragon of China assuming the political leadership of the East, after the Big-Mouthed, shoe-pounding actor of the Kremlin is no longer. It will not be his mission to bury us.

—*Robert Reidt*
New York, N.Y.

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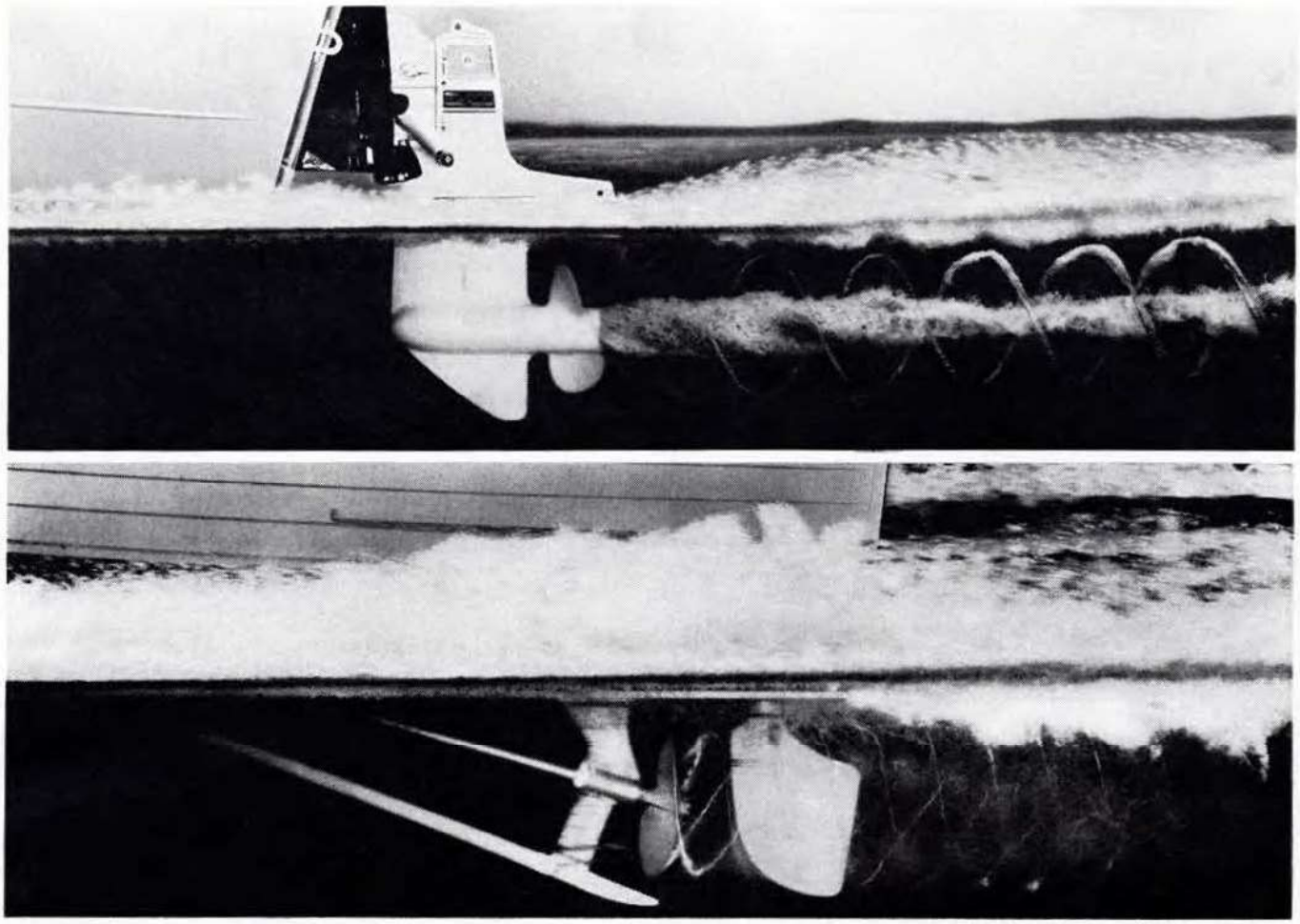

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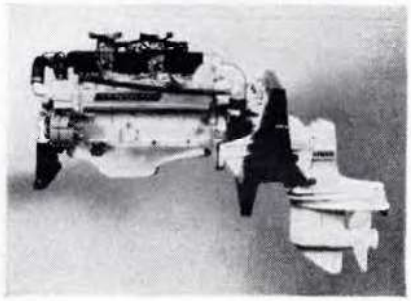
MerCruiser 140

140 hp, 6-cylinder in-line engine and MerCruiser I Stern Drive. Hydraulic shock absorbers. Shear-proof propeller protected by a live-rubber safety clutch. Tilt-up feature of an outboard. Dual water-pumps. Weedless water intake. Adjustable anticorrosion trim tab.



MERCRUISER

110, 140, 190, 225, and 310 hp gasoline
39 and 100 hp diesel

STERN DRIVE POWER PACKAGES

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IT'S A MAN'S WORLD

LEAN MEAT COUNTDOWN

At Purdue University they're making men and women lie down (separately) in semi-cylindrical trays, pushing them into a tunnel like an old-fashioned or pre-Polaris submarine torpedo tube, and keeping them in the dark horror-chamber a few minutes while radioactivity from their bodies drives a 45-ton Geiger counter crazy. If they can't stand it, the subjects can press a panic-button and get ejected. So far only one coward has pressed the button. The subjects aren't as hot as a uranium reactor. Their radioactivity comes from Potassium 40 that is always present in the body. All the subjects had lost weight on a reducing diet composed, by strange coincidence, of Metrecal. Potassium 40 is concentrated in the lean body mass. The countdown showed that nothing was lost on a balanced diet reducing program but fat. Scientists have been pretty sure of that all along, but there's nothing like radioactive proof. Reducing won't hurt your muscles a bit. It may just bring some of them conspicuously closer to the surface.

WHERE A MAN'S A MAN

American women don't know how spoiled they are and American men don't know how much they have let women get away with. A more seemly order of life exists elsewhere, we learn from a distraught article by Maya Pines in **Harper's.** The setting is Tokyo. She and her husband were overwhelmed with Japanese politeness, bowing, door-opening and courtesy whenever they appeared together. But when Maya Pines ventured forth alone, she seemed to have become totally invisible. It dawned on her that all the attentions were aimed solely at her husband and she finally recognized that her status as a woman was one of total insignificance.

American women exposed to such eternal verities tend to mutter things about "pampered husbands" with some excuse, since a sensible female upbringing is virtually unobtainable in the U. S. Maya Pines reacted very strangely to a shoe incident of perfect propriety. She teetered on one foot trying to step into her shoe—removed according to Japanese custom—when she noticed a flurry of activity around her. "Armed with a gigantic shoehorn, a waitress was kneeling at my husband's feet, helping him to get into his left shoe. She had gripped his calf, pressed her head between his legs, and seemed to be stroking him. Kneeling beside her, another girl was tying his right shoelace. A third waitress was carrying his brief case which she brought out to the car for him."

The remarkable thing is that such minimal attentions to the male could possibly be regarded as extraordinary. A tradition of service by women to men needs to be revitalized in this country. Indulgent, kindly American men have defaulted their training responsibilities too long. We practically decided to correct matters in our home by clapping our hands and snapping a curt "Woman, my shoes." On second thought, we realized that it would be far better to invite readers of this page to do the wife-and-shoe bit in **their** homes. After all, the reports of hundreds of readers will be more valid than the experience of a lone editor. Let us know how you make out.

OF BODIES POLITIC

Let's elect some fat men to Congress and get at least one into the President's cabinet. Large bodies of our population have no political representation. The dominant political type today, the ideal of the hustings, is young, slim, clear-eyed, lean-jawed, always in motion, tight as a drum, and looks damned hungry. A fat man's mind is not inherently better or worse than a lean man's, but a big fellow tends to pause and reflect more often about where he's running to. Fat men never tell skinny ones to put some meat on their bones, but skinny ones, calling it "rehabilitation," are forever promoting national programs to reshape the corpulent into their own image. Thin politicians press fat men to subscribe to $1,000-a-plate fund-raising dinners and then give speeches instead of second helpings. Maybe it's time we got Alfred Hitchcock to run the Department of Justice.

IN AND OUT

The female breast, like history, has its ups and downs. We never thought much about this until we read a medical article by Dr. Philip Thorek explaining how surgical snipping can convert certain downs into ups. Dr. Thorek is a mammary historian as well as a surgeon. He says that Minoan maidens used brassieres 5,000 years ago to emphasize the bosom. During the Christian era the breasts were concealed by flowing garments, but Crusaders got ideas and in the 13th century garments accentuated the bust. Tastes changed in the 15th century and breasts of growing girls were suppressed by metallic plates. In another hundred years the raised bosom was back in style. In the 1920's the flat boyish chest was the rage. What's the situation today, if you haven't noticed? "The full, elevated breast again enjoys great esthetic popularity."

Definitely up.

IF YOU CAN'T JOIN 'EM . . .

Our hats are off to Mrs. Edna McLain, who runs a bakery in Cleveland, Tennessee. She has invented the only trading-stamp gimmick we ever heard of that makes any sense, and we hope it sweeps the country. She gives U. S. savings stamps.

SYNTHETICS, EVERYONE?

If you've been betting "mudders" on the nose, the jig may soon be up. There'll be no mud, potholes, or bad weather to upset form on synthetic race

(Continued on page 12)

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BROWN SHOE COMPANY

Prize calfskin, and only $16.99

Any shoe expert will tell you that calfskin is the "filet mignon" of leathers.

It's made from select young hides. It's exceptionally soft and supple, surprisingly durable, and takes a deep, lustrous shine again and again. And it's usually priced accordingly.

But not this Roblee. The calfskin which goes into the upper of this shoe is every bit as rich and mellow as the leather you find in shoes costing $20 and more. Branded with the Roblee name, it's just $16.99.

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Because inside there's a deep foam cushion that pillows your foot from your toes back to your heel. That's the kind of comfort you usually find only in casual shoes.

Roblee has some great bargains for you in casuals, too, but try the calfskin first. In antiqued brown or black.

Shoe illustrated, 16.99. Most styles, 10.99 to 18.99. Higher Denver West.

ROBLEE®

Roblee Division, Brown Shoe Company, St. Louis, Missouri

IT'S A MAN'S WORLD

(Continued from page 10)
tracks like one near Washington, Pennsylvania, that will open this spring. Instead of dirt or turf, the 5/8-mile harness-racing track of the Washington Trotting Association has a surface of tough, bouncy plastic stuff. The non-slip, even-surfaced, resilient "Tartan" surfacing material, developed by the 3M Co., is expensive—$2 to $3 a square foot—but that's nothing but money to people who improve the breed.

Fast synthetic tracks may upset dopesters for a while. There's no 'ammer, 'ammer, 'ammer on the 'ard 'ighways to 'urt the 'orses 'oofs. Horses seemed to go all out on a synthetic-surfaced 1/8-mile warmup track at Belmont Park and got off to fast starts from a similarly surfaced starting gate area at Saratoga. There's a project under way to fit horses with plastic or nylon shoes. They may run faster if their feet aren't killing them.

Is this cricket? Will synthetics set synthetic records? Will victories be won on synthetic playing fields of Eton? It's too late to deplore it. Synthetic-surfaced strips for the pole vault and broad jump have already been laid at the University of Minnesota, the Los Angeles Coliseum, State College, San Jose, California, and Arizona State College. Recent pole-vault records have not only been set on synthetic surfaces, but they have been set with synthetic poles. Baseball is threatened by disappearance of the unexpected bounce and the pothole that throws a fielder and turns a single into a double. The Minnesota Twins already have synthetic-surfaced batting warmup circles at their Bloomington stadium. Remembering the last Giants-Packers pro football game, played on sward frozen so hard that cleats couldn't dent it, we have to approve plastic playing fields on humanitarian grounds. The plastic surface is springy at below zero temperatures. And much kinder to faces ground into it.

STICK THE STICKERS

We say that now is the time for all good men to get organized to put down those furtive characters who slink out from nowhere when you aren't looking and plaster a sticker for Glotz's Gardens or Bogeyman's Kiddieland on your bumper. They turn a man's car into a perambulating billboard without so much as a by-your-leave. Once we drove 200 miles before we discovered that our rear bumper flaunted an orange and green poster for Gribbleman's Gigantic Caverns where we had merely parked to have a beer. A good way to discourage these chromium defilers would be for car owners to establish standard advertising rates for bumper space and present a bill to the users. Probably $10.60 for 24 hours worth of display would be about right—10 bucks for the bumper space and humiliation and 60 cents for special solvent to remove unsightly gobs of adhesive that won't come off with ordinary washing.

FIREARMS FACULTY

Yes, Virginia, there is a shooting industry, and it isn't what you might think if you were brought up in Chicago during Prohibition. The industry makes guns, cartridges and products used in the shooting sports. Members organized the National Shooting Sports Foundation, Inc., to stimulate more people to become shooters through a broad educational program. One long-range project to incorporate firearms training into the physical education curriculum of a major state university will be developed, so that many physical-education teachers will be prepared to teach safe firearms handling to youngsters. Shooting sports can get more information from the Foundation's executive director, A. Robert Matt, P.O. Box 355, Hartford 1, Connecticut.

MONTE CARLO GAMBOL

Just to prove that editors don't really live in ivory towers, one of our staff recently embarked to Monte Carlo. No, we had no new space-age computer designed to break the bank there. Rather, we were guests of the Ford Motor Company which flew a press party over to Monaco to introduce us to mid-year developments and improvements in the 1963 cars, and also to introduce us to their factory-team entry into the famed Monte Carlo Rally. We liked the cars—and Ford liked the Rally results: first and second in class, a remarkable performance in one of Europe's toughest tests of men and machines.

QUESTION . . .

. . . by Associate Justice William O. Douglas of the Supreme Court: "Sex cannot be suppressed in life. Should it be attempted in literature?"

GOVERNMENT GOOFS

We commiserate with a few stamp collectors who thought they had a fortune in their grasp until the post office thwarted them by some nasty work in the printing department. The incident, which you will remember if you are a collector, concerned sheets of misprinted Dag Hammarskjold stamps which at least one possessor valued at $500,000. The post office promptly issued thousands of deliberate misprints so the ordinary hobbyist could add a boner to his collection for a mere 4 cents. Nothing hurts more than a collapsed dream of fantastic riches, and we understand the bitterness of collectors who felt that they had been perfidiously plunged into dire poverty. Still, we must or at least will, take the larger view of what is best for the country. Is it right to encourage youngsters to think that errors are the road to fortune? They could grow up pursuing errors for a livelihood, scoffing at hard work and McGuffey Reader stories about the boy who always had the grocery store swept out an hour before the boss arrived. Errors by the government need no pecuniary encouragement and should be diluted in every possible way. Let us use the Hammarskjold stamp as a lesson for teaching little tots a way of life they had better learn while young. The text of the lesson is "the government giveth and the government taketh away."

Free to all debating coaches is our latest list of debatable propositions:

That predictions by economists are to be taken seriously.

That mother knows best.

That people who pay money to astrologers have IQ's above 50.

That it is noble to pinch off-track bookies in states that allow on-track betting.

That it is easier to fool an illiterate than an intellectual who is out of his depth.

That our income tax laws will get simpler.

—THE EDITORS

OMC BOATS

NEW from Outboard Marine . . . Anyone who knows boats knows that boating is a compound of fun and fussing — with the fussing often outweighing the fun. But no more! For the first time, OMC's new concept of boating *engineers out* the traditional nuisances, as thoughtfully as safety, comfort, convenience and dependability are *engineered in* this revolutionary hull design. It's the best thing that's happened to water in years — and prices are lots lower than scuttlebutt (or the boats themselves) would lead you to believe. Grab your sailor hat and head for your OMC Boats dealer's, and a funabout that's

Ready to go at the drop of a hint!

On the beach, FUNABOUT #1 — the OMC 17 DELUXE. Complete and ready to ramble — all you need is gas and oil. Deluxe shock-absorbing seats, built-in storage bins and lockers, power-tilting windshield, convertible top with rear and side curtains, carpeting, 88 hp OMC 488 stern drive with power-lifted lower unit — all these and more are standard equipment. *On the ski-scoot,* FUNABOUT #2 — the OMC 17 CUSTOM. The boat with a brilliant future but fewer frills for now . . . deluxe performance in a two-seater you can customize to your desires. FREE brochure!

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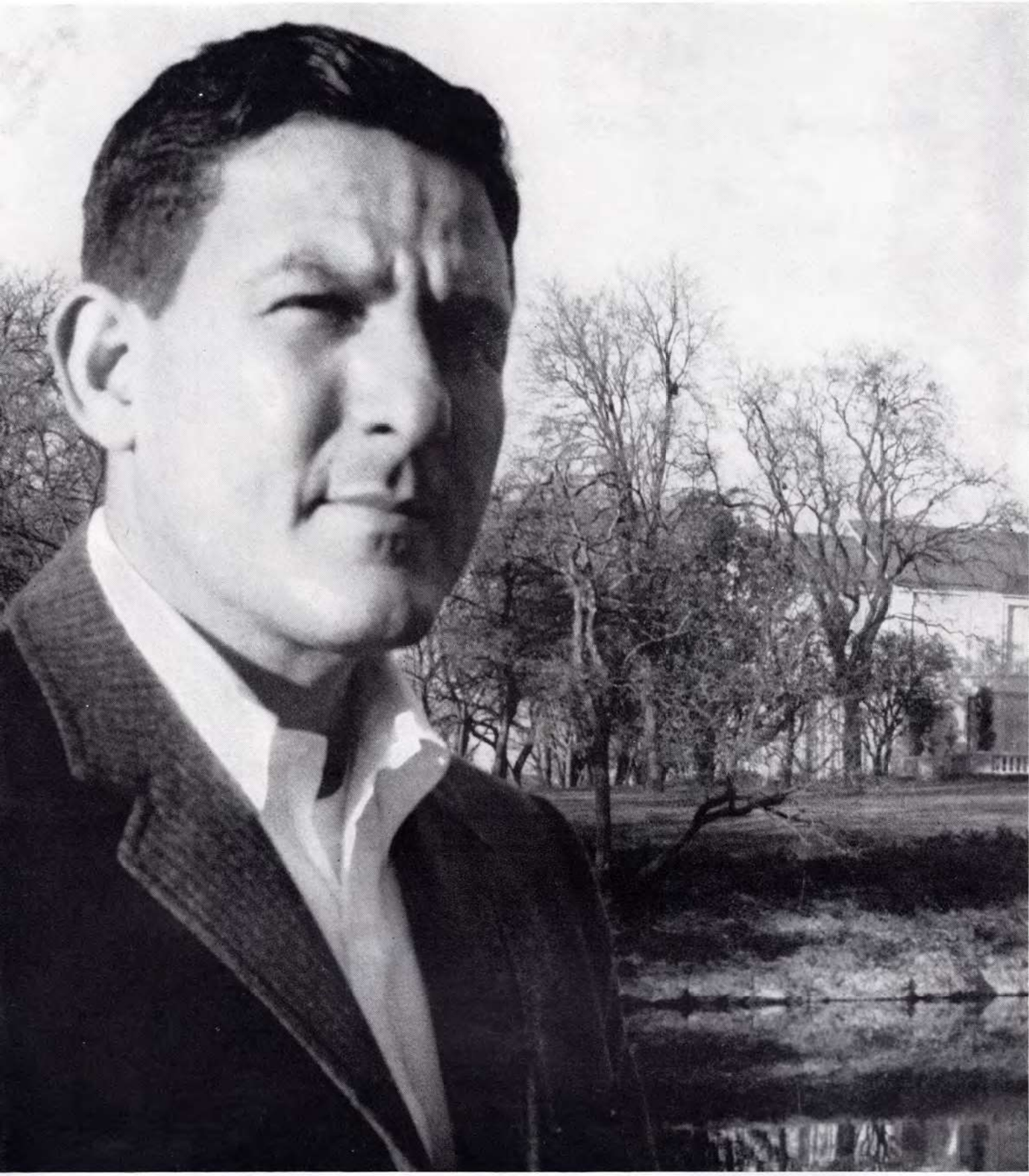


DALLAS, TEX.

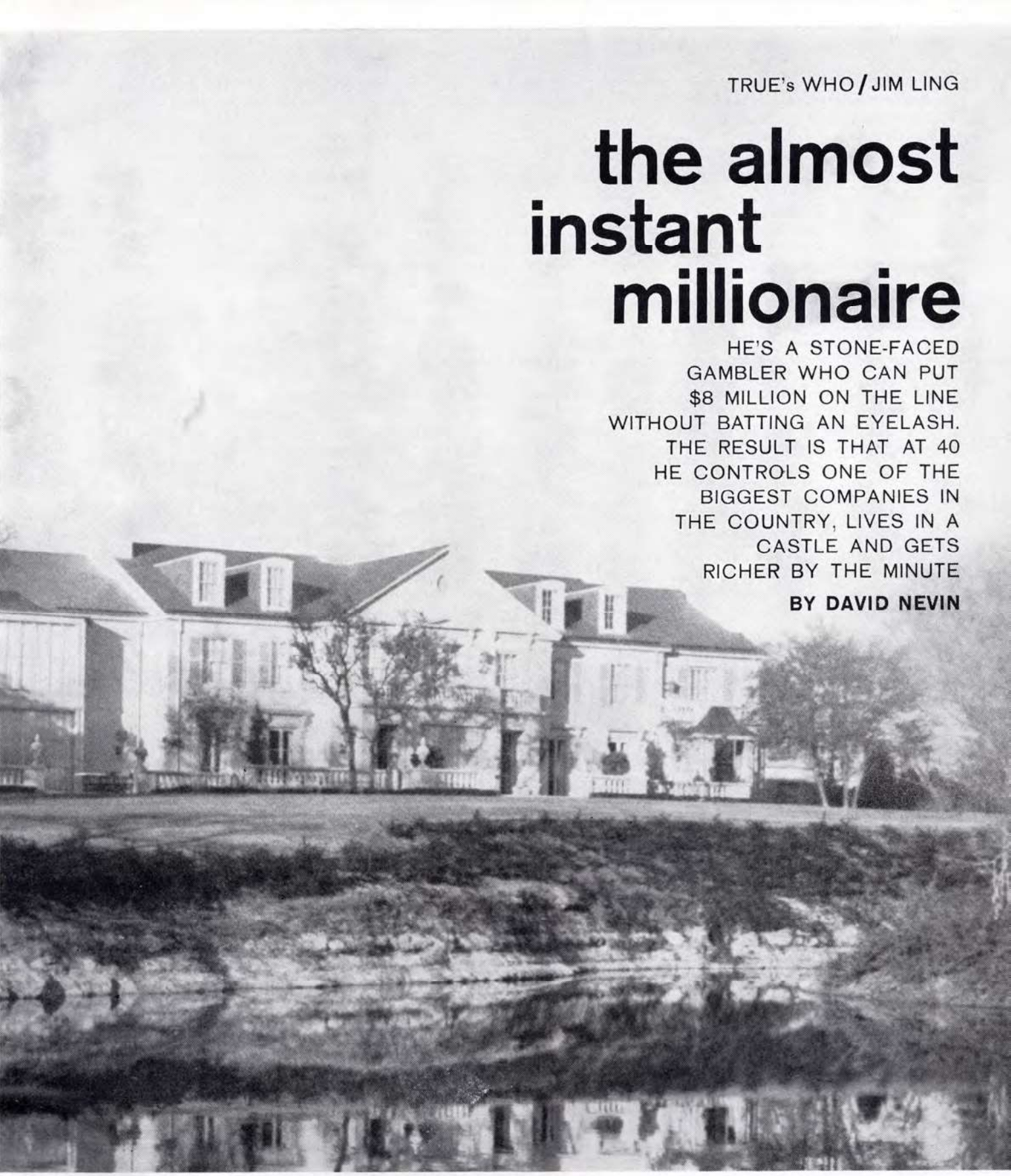
■ Jim Ling, a journeyman electrician from Dallas who started a little housewiring business a few years ago and today is one of the nation's hottest young industrialists, was showing me his new house. It is quite a house. It stands on a 20-acre wooded tract in the heart of the best Dallas residential district. It has its own fishing lake and a three-hole golf course. Inside are rooms paneled in walnut, superb wood carvings, even a complete gym and Turkish bath. As we swept into the master bedroom, Ling, a tall, powerful man still in an expensive raincoat against the cold outside, was irritated. You could tell it only by the grim, bleak look that came over his face and the tightening of his mouth. He was recalling that a Dallas columnist had written that the tub in the master bathroom cost $75,000.

"Ridiculous," he said. "It makes me look like an exhibitionist."

the almost instant millionaire

HE'S A STONE-FACED GAMBLER WHO CAN PUT $8 MILLION ON THE LINE WITHOUT BATTING AN EYELASH. THE RESULT IS THAT AT 40 HE CONTROLS ONE OF THE BIGGEST COMPANIES IN THE COUNTRY, LIVES IN A CASTLE AND GETS RICHER BY THE MINUTE

BY DAVID NEVIN



PHOTOGRAPHED FOR TRUE BY SHEL HERSHORN

The tub in question was a Roman bath carved from a huge marble block some 10 feet square and several deep in which you literally could swim.

"And how much did it cost?" I asked.

"Why," said Ling, "with a smaller tub in another bathroom, only $14,000."

Now if this still seems like a fairly expensive bathtub, you should consider the cost of the house. It is a magnificent place to live in and undoubtedly very nice for raising children, but probably the most compelling reason for its creation is that it's Ling's way of announcing that he has come of financial age.

The bang is of the megaton variety. The house, with furnishings, assembled in the year 1962, cost more than *three million dollars*. There is an element of contradiction here. Spending

$3 million on a house sounds somewhat like the stereotyped picture of the typical Texas millionaire. Yet Ling is anything but typical. He is a quiet, somewhat conservative and often moody man who spends his money readily but appears to get no particular enjoyment from it.

Nevertheless, his new house leads various society matrons and old line Dallas financial interests to glare and mutter about the new rich and upstarts and things like that, but it is interesting that they do not do this when Ling is in earshot or even when they think it might get back to him. For the fact is that Ling has demonstrated plainly that he is a very potent man in action. He is lean and hard and he gives the impression of being dangerous—both physically and financially. He thinks swiftly, makes decisions incisively and is a fighter by instinct, willing to lay millions on the line and able to do so without anguish.

He had already built his little housewiring business into a sizable electronics empire two years ago when he jumped into national prominence. In a savage money battle he took over Chance Vought Aircraft, a great old aviation name. Dallas financial figures were at first infuriated by this upstart move on a company they regarded as a Dallas institution. But as Ling swiftly whipped Vought down in a hair-raising display of high stakes gambling, they were shaken and subdued.

For now, just 16 years after he had opened his business on $3,000 gleaned from the sale of an old house, he controlled a corporate giant of startling muscle. The other day, for instance, the Army awarded Ling a $100 million contract to develop a new tactical combat missile. To win that contract, Ling had to nose out an outfit up in Michigan known as Chrysler Motors, which until Ling got into the act had planned on making that missile itself. Only a few years ago, the most business Ling could have imagined having with Chrysler would have been the purchase of one of their autos—except that he couldn't have afforded it.

Nor was this corporate stature the whole picture of the financial power he wielded—his own personal wealth stood in excess of $25 million, he had his own bank and his own private investment house and he was busily erecting a 31-story office building in downtown Dallas. And even worse, from the point of view of the old financiers in Dallas, Ling had shown himself to be a fighter of extraordinary skill. He was 38 years old when he took over Vought.

Ling looks like a big, mean Indian, though in fact he is Irish and German, the latter supplying his name. He stands a broad six-two, weighs 200 pounds and carries himself like an athlete. He wears expensive clothes with a natural flair and moves with a sort of tigerish and faintly menacing grace. Women's knees weaken when he approaches, a beautiful young secretary told me with a sigh. In fact, she said, he might be devilish if he smiled. But he rarely does. He faces the world with glowering intensity. He remains calm, but it is a controlled calm for he is always impatient and rarely relaxed. His mind works faster than most people's and it irritates him to wait for them to catch up.

Few people know him well, for he is deeply reserved. He sat behind his big black leather-topped desk and talked to me for hours in a monotone, his expression unchanging, hands rarely moving. He was fair and candid, but he never fell prey to the opiate most men find talking about themselves to be. Now and then, when something irritated him, his face hardened and turned bleak. Occasionally a wintery smile flickered over it. That was all.

Ling has been described as a cold fish, and in a sense he is. He is so efficient as to be rigid and metallic. Little beyond his business moves him. But he is not an automaton—no matter how carefully he hides it there is real passion and excitement burning inside him as he manipulates the affairs of business. Thus there is a sense of contained delight in the way he grinds out decisions of great magnitude, decisions that govern the ultimate future of 19,000 employees and the startling variety of electronic and hardware products, most oriented to the military, which they make. Ling-Temco-Vought, as the corporate combination is titled today, makes a crack mach 2 fighter for the Navy, a rocket that already has put payloads into orbit, radar for deep space tracking, radios to reach deep underwater to submerged Polaris submarines and several hundred other items, including some very excellent commercial refrigerators.

Yet despite his efficiency, Ling leaves the clear impression that the actual products and the techniques for making them bore him. He is not interested in the firm's day to day operations and may not even know a great deal about them. He leaves that to his operating personnel.

"Operating people are like grapes," he says. "They grow in bunches and they're always available. I don't know many people who can do what I do." What he does, in short, is to manipulate and regulate the financial ebb and flow of his business to keep it, in total, healthy and vibrant.

Ling is, in fact, more financier than industrialist. It is when he talks of money and its manifold uses that enthusiasm creeps into his voice.

Outside of politics, the real power in this country belongs to those few men who have learned to use—not just to have, but to use—big money. Ling loves money, not for what it will buy but for the weight it swings. In part, at least, this is true because like all good politicians, he is a great competitor. His friends say that his golf could be of professional quality, not due to any signal skill he possesses but because he plays with a savage desire to win. He is no different in anything else he does and as much as any other single thing, it was that fierce desire to win that made him.

It began when he was 19 and he turned up in Dallas as an apprentice electrician. An Oklahoma orphan, he had dropped out of high school five years before to go on the bum. Now, through at last with bumming, he worked like fury, applying his already extraordinary brains and energy, and in less time than an electrician might believe possible, he was a journeyman. He married, bought a provident little house, put in a wartime hitch in the Navy, sold the house and with the $3,000 thus procured, on New Year's Day, 1947, opened his electrical contracting business.

Almost immediately he bid on and won a job that required a nearly unobtainable type of cable. He found some in a military surplus yard and though he estimated its worth at $5,000, he could stretch his own resources only far enough for a $540 bid. To his surprise, it was accepted. It has been said that he then had to scurry about gathering funds to cover his $540 check. Today he refuses to agree with this contention that, in effect, his multi-million dollar empire got off the ground on the strength of a hot check. "I imagine I had it covered," he says with his wintery smile. But hot or not, it was at this point that Ling's contracting business began to move.

Ling worked with tools for the first year, but after that he was too busy with his pencil. He grossed $70,000 the first year, $200,000 the next, $400,000 the next. Ling was young and slight—he wore a 29 waist in those days—and

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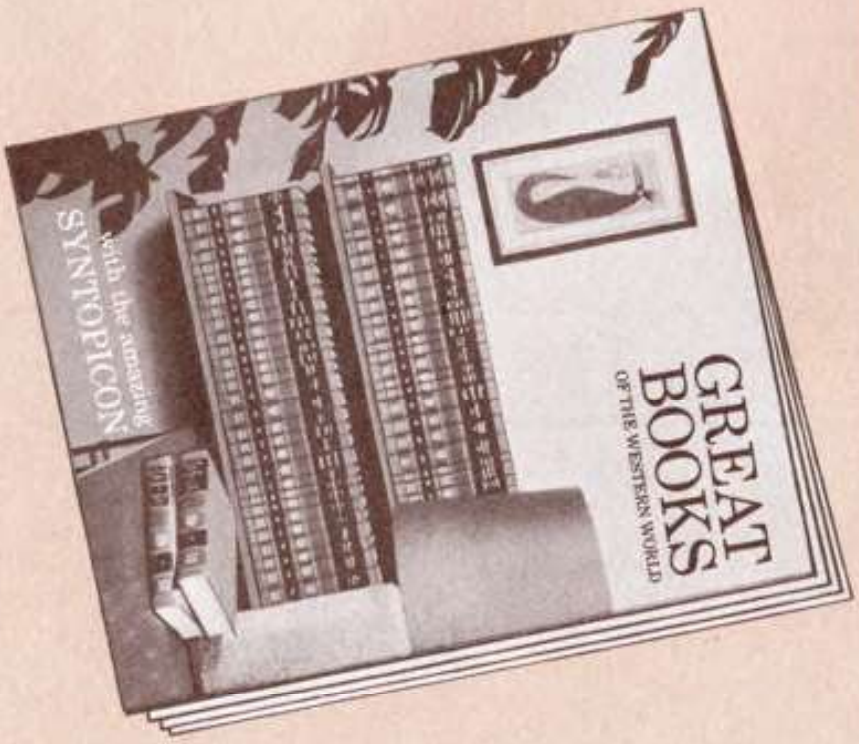

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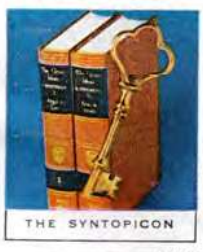

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[*Continued from page* 16]
bankers and businessmen did not always take him seriously. But he was growing adept at pencil whipping, as his brother Charles called it.

"Whenever things looked dark and one of us (in the firm) was feeling low, Jim would take him in the office, sit down with a pad and pencil and start working out figures to prove that everything was rosy as hell. Even if we knew we were in a bad jam, we'd watch Jim work out those figures and we'd feel good again. In later years I watched him walk into banks and pencil whip bankers out of millions of dollars." Ling recalls that he was changing and growing during this period. One of his men continually affronted Ling's gathering sense of reserve which today is so strong, by playfully mauling him. One day Ling turned and punched the man hard in the belly. "I laid one right in his gut. You never saw such a surprised look. He never touched me again."

In 1955, Ling Electric grossed $1,900,000. Ling cleared $192,000, took home $32,000 after taxes and was bored. He dabbled in a golf tournament and further to pass the time, bought into a floundering insurance company and was elected to its board. A look at the books, which showed $148,000 lost in 16 months, convinced him that management was awful. Now a curious situation developed, one that accurately forecast Ling's future had anyone been interested in watching. For swiftly, incisively, he began to move, not by experience, certainly, for he had none in corporate finance, but by some built-in sort of instinct. He seized control, threw out the management, reorganized the entire operation, filed a few lawsuits, cut down on lavish spending, eliminated luxurious offices and in two months had the firm showing a slight profit. But even as he congratulated himself, his inexperience showed. He had left his flanks unguarded. Deposed management induced another stockholder to start a proxy fight. Ling, caught unaware, was in one move voted out of control and right off the board. He was stunned; even today, his brother vividly recalls his pain and dismay. He sold out for an $18,000 loss and the company soon folded. And he thought, "I've got a lot better company than that. If it could go public (sell stock) why couldn't mine?"

Now, blooded at last in the game of finance, he was on fire. He issued $1,800,000 in stock, kept half for his interests in Ling Electric and began selling the remainder himself. For help he had a man whose previous experience was in door-to-door selling. And during the campaign, his prospectuses were passed out from a booth at the State Fair of Texas. These two points, he believes today, hung on him the persistent label he still is fighting—that of a phony, a slick stock promoter. For ever since it has been said that his stock was peddled door-to-door and from a booth at the fair, which are classic methods of unloading bum stock. The charges were not true, but they gave Ling a gamy financial reputation from the start.

He also, however, had $738,000 (after costs) in new capital. Electronics was an obvious switch from electricity and soon Ling was eying a floundering electronics firm in Los Angeles. It had a good product, good personnel, a national market, only one competitor—and it was being mismanaged to death. Not long before a national company had considered investing $600,000 and had been scared off by the demands of the eccentric owner. Now it was near collapse.

Ling flew in one Wednesday morning to tour the plant. He ignored the owner. Instead he looked at the machines and talked to their operators, a big, tough looking man in an impeccable suit who instantly inspired confidence in those he questioned. He pried and quizzed and examined and spent a few minutes razoring over the books, and then, when the chief engineer agreed to stay on as president, he made up his mind with a near audible click. He turned to an assistant. "I don't want to see the owner," he said. "Tell him I'll cover all the debts and his back salary. He'll get, let's see"—figuring on an envelope—"$19,000 in cash and a clean financial bill. He has exactly 48 hours to decide. Tell him he can reach

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NEXT MONTH IN TRUE

me in Dallas." He turned on the instant and walked out, raincoat flying behind him. It was not yet noon.

Under such a cold turkey approach, the harried owner folded and sold for $19,000 what before had been worth a $600,000 argument. Ling renamed the firm Ling Electronics, put in $100,000 in operating capital, paid back debts with new income and began to roll. That was in 1956, and from then on he rolled with constantly increasing speed, growing, expanding, buying and merging, always merging and always arranging his mergers so that he remained the dominant figure. He flew 120,000 miles a year ("I was airborne two months out of every year") in those days, sweeping coast to coast to build his companies and pick up new ones. He absorbed firms in places like Burbank, California, and Winchester, Massachusetts, North Hollywood and Dallas again and Newark, New Jersey.

By 1959, Ling Electronics was solid and nationwide, still small but a base for bigger moves. Now Ling moved in on the Altec companies, makers of fine sound equipment, and showed them that although their net worth was six times his, their sales were less and he should take them over. With Altec in the sack, he borrowed $5 million from California's Bank of America—no small feat in itself, that—moved on a couple more firms, including Continental Electronics, an outfit that had higher sales than Ling-Altec combined. To sell Continental, Ling reversed his pitch—certainly Continental had bigger sales, but its net worth was smaller and it could do more allied with a solid, high net worth firm—like his—than it could do by itself.

So, still in 1959, Ling-Altec became a firm with sales of $50 million, quality products, a strong reputation and, of course, heavy indebtedness. Ling now began to look for a company with loose cash among its assets. He decided that Wurlitzer fitted perfectly and started a furious courtship. To his stoned amazement—he still has not quite gotten over his surprise—he was coldly rejected. It was the only company he ever went after that he failed to get.

But while he was beating his head against Wurlitzer's wall, a Dallas stockbroker named Charles Kirkham was busily touting Ling to his favorite customer, one Col. D. H. Byrd. Byrd is an amiable multi-multimillionaire sometimes known as Dry Hole Byrd, less for his initials than for the fact that he drilled 56 dry holes in a row before his gutty 57th opened a new oil field and made him permanently rich. He is thoroughly likable and affects a sleepy sort of affability that is somewhat belied by occasional glances sharp as dry ice. He is about as soft as hobnails.

Byrd was a heavy stockholder in a Dallas firm called Temco Aircraft, which occupied half of a huge plant in which, during World War II, North American Aviation had manufactured B-24 and P-51 aircraft. By 1960, Temco was considerably bigger than Ling-Altec. It had sales of $90 million and—much to Ling's delight—about $4 million cash in the bank. But, as Byrd saw it, Temco had a problem too. Formed to build aircraft, it by this time had branched largely into electronics, but its public image was still for aircraft, a weakening industry. Byrd wanted to merge with an electronics image.

So, one spring day in 1960, Byrd suggested that Kirkham take Ling to the Temco plant and introduce him to the officers. Kirkham did so one afternoon and the discussions began that would lead that summer to the formation of Ling-Temco, a corporation with annual sales of $150 million, a space-age capability and a place, for the first time, in the top 500 firms in the nation. Needless to say, Ling emerged from the negotiations in the dominant position.

When it was over, Kirkham received a fee for bringing the two together. It was a check for $25,000, half of which went to his firm. That was the best paid afternoon of Kirkham's life.

Ling flew off to Hong Kong for a vacation, came back loaded with Oriental art and found awaiting him a startling piece of information: Chance Vought Aircraft was available. Vought was an old-line airframe manufacturer dating back to 1917 with a brilliant string of Navy fighter planes. It moved to Dallas from New England in the late 40's to occupy the other half of the plant Temco had taken from North American. For years only a fence and a wall separated the two. Since 1958, when it lost two major contracts, Vought had been floundering and now a

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group of heavy stockholders wanted out.

Though Ling, who is getting somewhat thin-skinned about his community image, does not like to admit it, the fact is that he had been planning all along to take over Vought.

When he called Byrd to announce the news, Byrd squalled unhappily, "My God, Jim, that wasn't supposed to come up for a couple of years or more."

"Yeah, I know," said Ling, "but now's the time."

"It'll take a hell of a lot of money," Byrd said.

Vought was a natural fit, with its electronic and airframe capability (it had a fighter, a good rocket and spacecraft contracts) and its location. Moreover, the trend in U.S. business is toward proliferating bigness and Ling is all for it. "You've got to be big," he lectures intensely. "The U.S. will spend $20 billion to put a man on the moon—and hole-in-the-wall companies just can't do it."

But Byrd was right. It did take a lot of money. There were 1,200,000 shares of Vought stock outstanding, selling then at about $33 a share. Ling-Temco's board authorized Ling to spend up to $10 million in corporate funds. He picked up the originally proffered stock and then, in October of 1960, began buying stock on the market, slowly and carefully so that the price would not be driven up. Early the next year, Ling-Temco held so much Vought stock that federal law required it to make its position known. Perhaps naively, since he was buying secretly and had every intention of taking over, Ling had hoped that all this would lead to a merger as amicable as his previous mergers. But he reckoned without Vought's enraged management.

Vought's officers acted like men fighting for their lives. The president wrote each of 20,000 stockholders to brand Ling a promoter and a stock raider who would gut the company and then throw away the empty shell. He took full page ads in national business papers to denounce Ling and assured everyone he would fight to the end. And the fight quickly got nasty. Vought executives sidled around town whispering to their friends, "Watch that guy Ling. We've checked him out. He's another con man."

Dallas was proud of Vought, its biggest industry, and the cream of Dallas business leaders were serving on its board. They got into the fight, hacking away at the highest levels. Two lawsuits were filed against Ling, each apparently designated to harass him. Ugly rumors began to spread. And there was trickery afoot too—Ling had a long, confidential luncheon with the president of a major Dallas bank, only to find later that the man was serving as spy for the Vought interests. Gradually the financial community split anti- and pro- Ling and, for the first few months of 1961, talked of little else.

There were times, his friends said, when Ling boiled in private. But he said nothing in public. Newsmen who brought violent quotes from the other side were turned away without comment. It was confusing: here were the officials of Vought, the important men of the community, hurling mud violently, while the slick promoter they feared so much maintained a dignified calm. It gave him an air of implacable certainty—and his opponents began to sound panicky.

But for all his strategy of dignity, Ling now was in a peculiar trouble of his own. The $10 million authorized by Ling-Temco's board had bought about 20 percent of Vought's stock—too little to guarantee winning a proxy fight, but too much to let him withdraw without shattering losses.

Anyway, Ling is a high roller by nature and he had not climbed to corporate power by backing down when things got hot. So he elected to fight, which meant to plunge, buying deeper and deeper into Vought, using his own money now and what he could raise, for Ling-Temco had reached its limits. But here lay another danger, too: speculators, knowing his needs, could buy the stock ahead of him, force up its price and reap a fortune at his expense.

One of the things that separates a real fighter from his fellow mortals is that he goes all the way. Now Ling blocked this danger with a daring move which in turn exposed him to still another calculated risk. He announced that he would pay $43.50 a share—nearly $10 above the then market price—for all the Vought stock tendered to him at the end of three weeks. This blocked the speculators, for it set his price in advance. But it also left him helpless in the face of the dangerous fact that there was $25 million in Vought stock still outstanding. If it all came in, it would swamp him and yet, by his agreement, he would be obliged to buy at his inflated price.

It was a superb gamble.

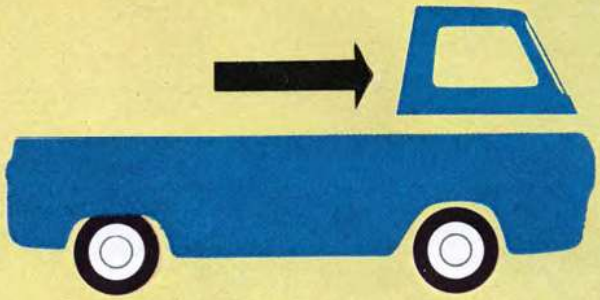
Every day Ling went to his office and sat behind his big black leather-covered desk and scanned his mail and dictated in a calm and even voice and tended to the manifold affairs of his company. And every day across the country men were selling off chunks of his other holdings for the cash to back his play and every day Vought stock poured in, coming in lots and blocks and share by share, and everywhere his brokers were buying still more on the open market. He kept his coat on and his collar buttoned and his face was dry and cool; this the men who worked around him still recall with awe. Day by day, a cigar tucked into his jaw, his eyes as cold as flint, he played his game—and when the pot was full and the hand was spread, he had thrown onto the table $8 million of his own money and another couple million raised by friends. He held a total of 460,000 shares

[*Continued on page 26*]

"But he was a nice man, and he gave me a lollipop. So I joined the Fair Play for Cuba committee."

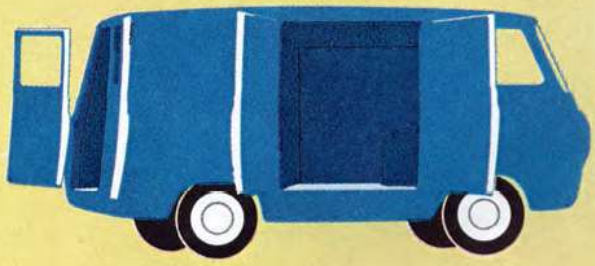
WHAT A PICKUP!

What a pickup you'd have if you could . . .



move the cab forward so you could see the road better and have more loadspace . . .

put a cover on the load area to keep out the weather and prevent theft . . .



put double doors at the back and side for easy load handling, and . . .

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[*Continued from page* 22]

of Vought stock, some 40 percent, and as a practical matter, he was in control.

"It took plain guts to make that fight," a Dallas businessman told me. "He laid eight million bucks on the line and he didn't give a damn. He went for broke. That's how the winners win."

Ling is a winner, all right, but he is much more than a simple iron-nerved high roller. In fact, he is about as complex a man as you will meet anywhere. A man who has studied him closely told me, "Ling is a very funny guy. He's cool, you know? And he's so goddam efficient. On balance, he's great—he's generous, he's fair, he's a very decent, even a good man. Despite what they say, he doesn't hurt people and he doesn't take advantage of them. You have to admire him. When you're around him, you want to like him—and you want him to like you. But the hell of it is, you're never entirely sure if either is true. He's reserved and busy and he's all wound up like a mainspring and he goes through life taking care of this and taking care of that, click, click, click, like a big beautiful goddam machine, and sometimes not a hell of a lot warmer. Sure I like him—I guess."

Ling makes little effort to make people like him, although, betraying a surprising sensitivity, he appears hurt by the fact that not a great many actively do. Nevertheless, he goes full tilt on his own way. He told me, for instance, that when people presented their views, he used to cut them off curtly: "I'm not open for discussion on that." He found, apparently to his surprise, that this enraged some men. Now, he says, "I usually hear them out—but I don't change my mind."

Perhaps it is as well that he doesn't. He has an uncanny sense for business pitfalls and a magnificent grasp of the mechanics of finance. A friend says, "He has a mind like polished steel. He can sum up a balance sheet at a glance, tell you what's wrong with the company, what's right about it, what chance it has, the best way to realize that chance—and if he wants to fool with it."

This brilliance is pretty well accepted—but what is not so well known is that Ling also has a fantastic memory. He can recall year-old golf games shot by shot. His memory zipped him through the first six grades of school in three years and he recalls lying high on the branch of a huge oak tree in Ardmore, Oklahoma, effortlessly memorizing pages of Zane Grey. Today, several years after he sees it, he can pluck the important details from a company's balance sheet and use them to his own advantage. He has a reputation for snap decisions, but it's more likely he bases them on facts drawn from his memory than on hunches.

Ling was born the son of an oilfield worker. His mother died when he was 12 and the family broke up. Two years later, when he was on the verge of graduating from high school, he dropped out and went on the bum. It was a background to build a yearning for luxury, perhaps, but hardly a taste for it.

But a skilled taste he has. He is meticulous in appearance and grooming. His tailor, first rate if a little jazzy, creates softly sculptured clothes. Ling likes soft rolled collars, expensive fabrics, regimental ties and sometimes appears in suave loafers and shaggy wool socks. He wears a heavy gold Rolex watch. Every Tuesday morning at 8 his barber trims his hair and Ling does not spoil the effect with a hat.

He has a real flair for art, including obscure Oriental items. He buys old masters, not entirely as investments. He likes old sculpture and statuary and is strong on satiny, polished woods.

When he opened Electro-Science Investors, an investment banking house which backs and then helps manage small electronics firms, he leased the top floor of a Dallas bank building. The fact that he was going into the opening phases of his multi-million dollar fight with Chance Vought at the same time did not seem to bother him, nor did it prevent his keeping an anxious eye on the decor. He was dismayed at the first decorator's efforts and promptly threw him out. Then he summoned the most expensive decorator in the southwest and gave him a free hand. The result is sumptuous and wildly expensive, suiting Ling's tastes and his self-image.

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THE SWINDLE NAMED DIVORCE
Has the time come to do something about our one-sided divorce laws? Are men being robbed in the courts of justice? Don't miss Max Gunther's hard-fact, power-packed article.
NEXT MONTH IN TRUE

Yet for all of this, Ling often displays simple tastes. He has said his favorite dish is meatloaf; he often lunches on a $1.20 hamburger steak. He smokes occasional 50-cent cigars and drinks good Scotch whisky sparingly, leaving the impression that neither matters much. When he travels he flies commercial jets, though his company makes airplanes. When he drives he sometimes takes a sedate Cadillac from his garage, but he is much more likely to ride with his executive assistant, Jim Lawson, in Lawson's Ford. He extolls the Cadillac's virtues to Lawson, and Lawson answers, "Well, it's just that I haven't gotten around to the Cad agency," but they keep on riding the Ford.

Though Ling and his pretty brunette wife, Dorothy, are climbing rapidly through the Dallas social scene, his tastes at home remain simple. He enjoys watching television, "which blots out that ringing phone." Several years ago, after his first marriage disintegrated, he married Dorothy, who was employed in his firm. She has the rare ability to be charming without saying much and the even rarer faculty of knowing how to handle Ling. In the extraordinary house he built for her, she is staging the social activity he only lately has begun to want. Ling has four youngsters, two of whom live with him, and he appears a normally devoted father.

On the night I dined with them, the oldest boy, J.T., was agonizing over the freshman English course he expected to encounter the following year at Southern Methodist University. "I hear it's a bust-out course," he said hollowly. "I'm not so hot at grammar."

Ling looked as distressed at this pitfall facing his son as any father might. And, unconsciously, he revealed another side—that of the philanthropist who seeks no favors. For Ling is in the midst of a three-year program during which he is giving an even million dollars to schools—including $100,000 to SMU, $100,000 to Notre Dame, $300,000 to build an entire grade school in Dallas. The schools do not publicize the gifts and he gets no honorary degrees. He does not appear on campus. "You go around," he says briskly, "and things get mushy. I don't like it."

One morning when I joined Ling at his office, his right hand was taped back at a painfully awkward angle. "Oh, I pulled a muscle Indian wrestling with J.T.," he said. "I didn't pay it much attention until I lost $80 playing golf because my drive was off, and then I thought I'd better do something about it."

He may not be a great Indian wrestler, but he is deadly serious about golf. In fact, golf and making money appear to be about the only things that really do interest him. He approaches both in the same fashion, fierce, intense, full of passionate desire to win. It is around his golf club—he still prefers a small, informal club which he helped start in his less opulent days—that he appears most likely to relax, most open with a few old friends, best able to kid and be kidded.

When he was bored with the electrical contracting—housewiring—business and before it occurred to him to incorporate and start coining money, he staged Dallas' first professional golf tournament. Its resounding failure was blamed on Ling. There was much caustic comment in the newspapers. He was then and still is deeply hurt over this treatment, which reflects the surprising fact that he is almost hypersensitive to criticism, a strange facet indeed in a man with Ling's hell-for-leather financial drives. During and even after the Chance Vought battle, people called him ruthless. This invariably upset him. "If I'm so ruthless, let them show me just one person I've hurt. Just one. They can't."

Even aside from the tournaments (which went on to become quite successful) golf pros like to play with Ling. He plays a good game, but even more important, he talks. Since business is all that interests him, he talks business, which means his partners get several hours of investment advice from one of the finest minds in finance today—and their improved stock positions prove it.

Ling freely gives his advice. He is essentially both a generous and an honest man. He tells things frankly which a more circumspect man might keep to himself.

This honest generosity makes for excellent relations with his men. By big bonuses, investment advice and sometimes even arranging for loans so they

[*Continued on page* 112]

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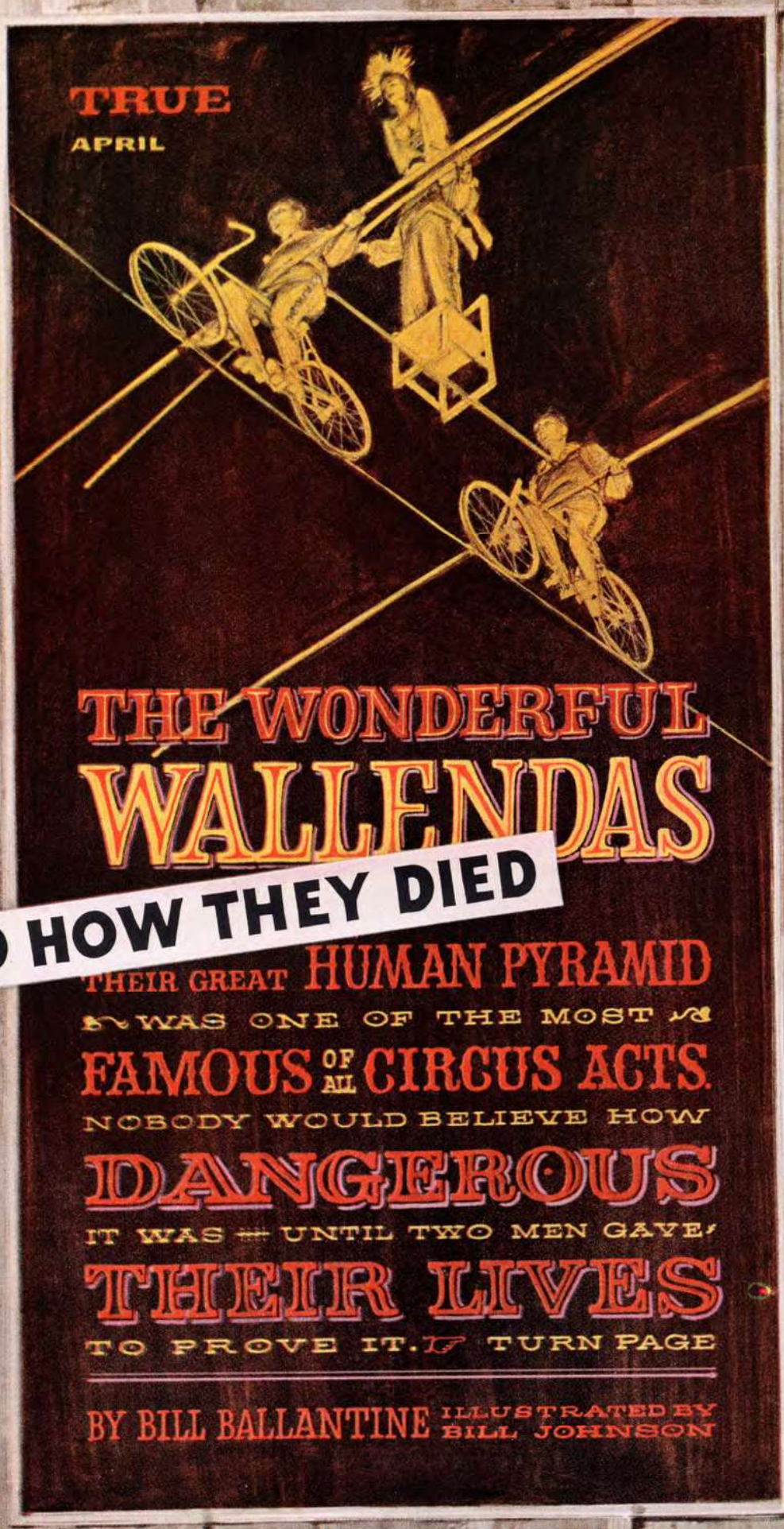

TRUE
APRIL
THE WONDERFUL
WALLENDAS
AND HOW THEY DIED
THEIR GREAT HUMAN PYRAMID
WAS ONE OF THE MOST
FAMOUS OF ALL CIRCUS ACTS.
NOBODY WOULD BELIEVE HOW
DANGEROUS
IT WAS UNTIL TWO MEN GAVE
THEIR LIVES
TO PROVE IT. TURN PAGE
BY BILL BALLANTINE ILLUSTRATED BY BILL JOHNSON

THE WONDERFUL WALLENDAS

NEW YORK CITY

■ Karl Wallenda is a man who pays absolutely no attention to prophetic signs. He has no fear of premonitions, has never called down a curse on anyone's head, nor depended upon charms for his own protection. He harbors only one superstition, if you can call it that: whenever whisky is spilled a dab must be touched to the left ear. ("It means good contract," Karl shyly explains.) There are those around the circus who say Karl should have heeded the ill omens on a fateful Tuesday in January, 1962, but I don't go along with that. What happened would have happened anyway, even if a cluster of horseshoes and St. Christopher medals had hung at each end of the high wire. Too many star-crossed people were involved.

Between shows in Detroit that evening, Karl Wallenda was the last man out of his troupe's dressing room, a three-sided ceilingless affair thrown up against a corridor wall. The cubicle was made of plywood panels scavenged from the front of a carnival motorcycle thrill-drome; on the section adjacent to the door was a primitively painted death's head about eight feet high. If he saw it at all, Karl paid the skull no mind as he snapped shut the cheap padlock, then sauntered toward the lobby of the Coliseum.

There he wove through the stream of departing matinee customers; few recognized the daredevil they'd just seen on the high wire. In mufti, America's most celebrated wire walker could easily pass for a seedy smalltown music professor. His pants bag; a coat button dangles; faded soup spots embellish his necktie. Karl Wallenda is small but powerful: 5-feet-6, 164 pounds. He walks cockishly with a slight lopsided swing, as though leery of firm ground. From an imposing high-domed forehead hair wings out thickly over his ears, like a clown's wig. He is not a comic man, but there is about him a clownesque touch. Karl's deep-set eyes are a mixture of pale blue and gray peculiarly spotted with brown; they seem fixed always on some distant point of balance. The mouth is held firm and sure in a permanent smile, crooked and bemused, a little undershot. Karl's face is sweet and strong, hollow and deeply scored, living attestation to over 40 years on the high wire. He started in 1922 in Magdeburg, Germany, with his brother Herman, now 60; Karl is 57.

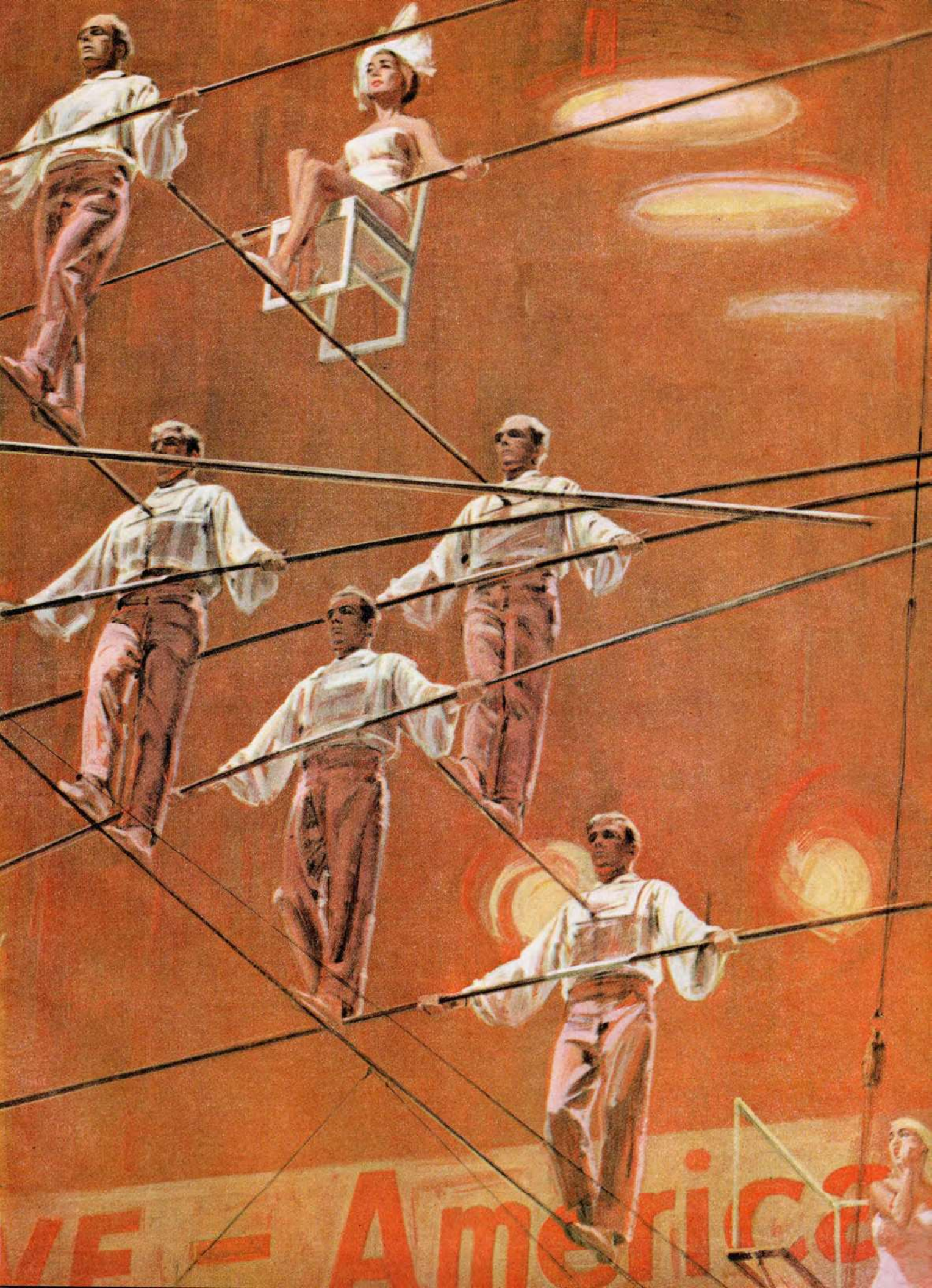
At a cafeteria off the lobby, Karl humbly joined the tray-pushers shuffling past the steam table. He selected his food, paid the tote, then sat alone to eat his poor supper, automatically and hastily.

The founder of The Great Wallendas was worn to a nub from the long drive up from Florida winter quarters. This was the troupe's first engagement of the new circus season. Everyone was exhausted. They'd worked this winter date, the annual Shrine Circus, many times. For this booking the wire-walking company—all relations of Karl by blood or marriage—was augmented from its usual nine to 13, an ominous talisman no one respected. And now the long grind was on again: living out of a trunk; sleeping in strange beds of hotels and motels, in trailers and truck-bunks; eating in shabby hash-houses; walking the wire twice a day the year round—rain or shine, hot or cold, Saturdays, Sundays and holidays included—with only a few weeks' breather at Christmas time.

"Thank *Gott*, Christ be born," muttered Karl. "Otherwise we all be for sure dead."

(Although he has been in the U.S. since 1928, Karl Wallenda still speaks with a pronounced German accent and falls readily into German constructions; his hindside-foremost treatment of the English language is a [*Continued on page* 84]

With a terrible cry, the first man in the pyramid let go of his balance pole. Then death waited for the Wallendas below.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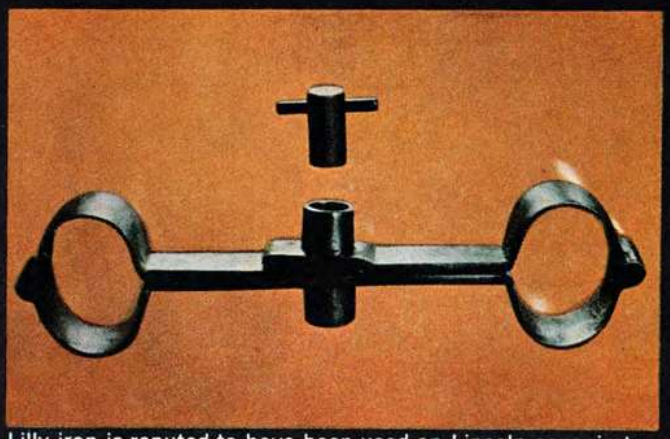

Lilly iron is reputed to have been used on Lincoln conspirator.

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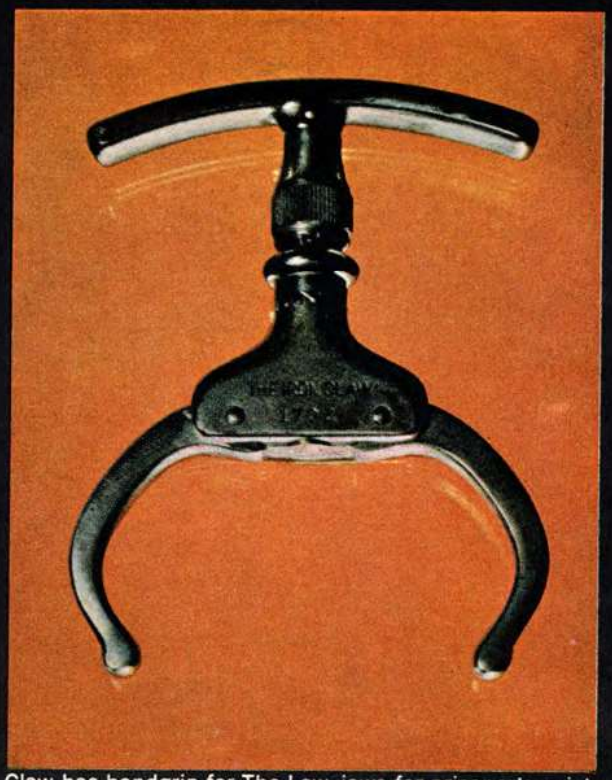
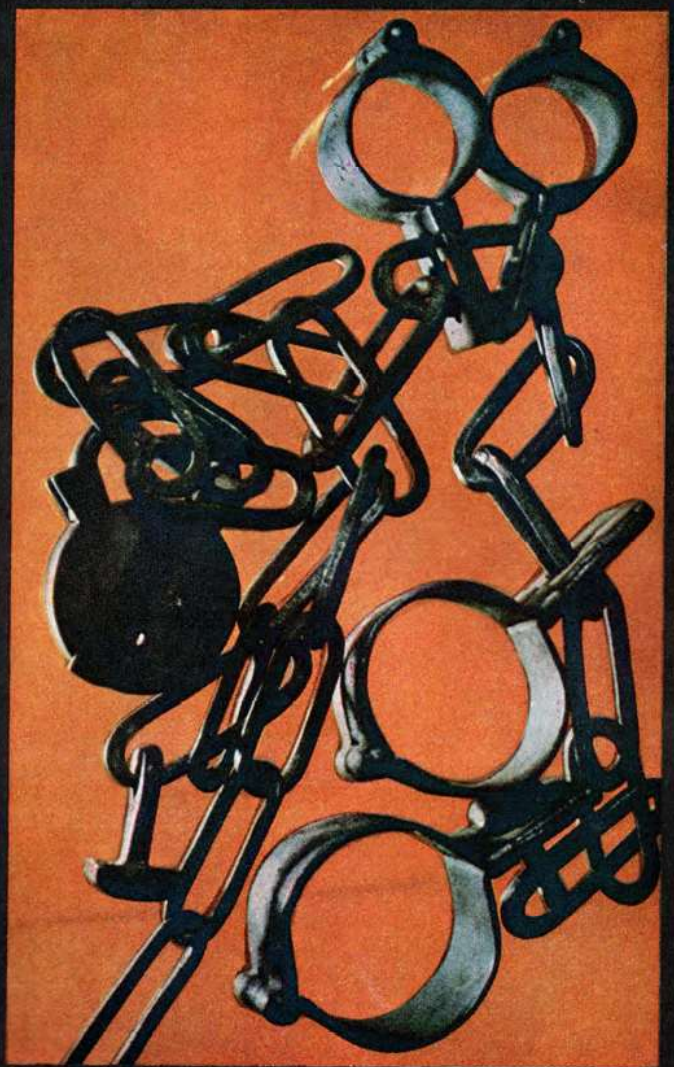
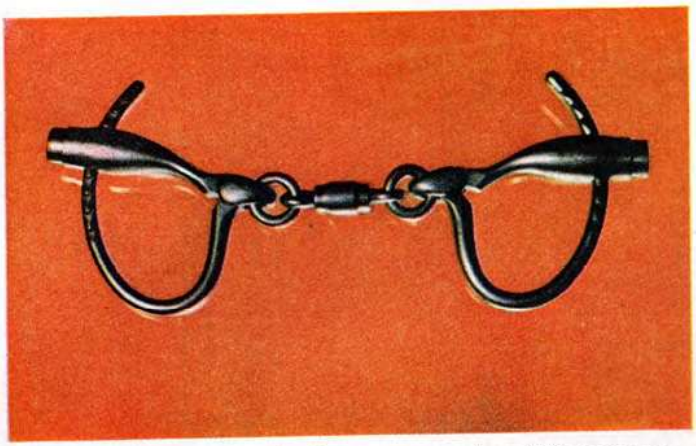


Claw has handgrip for The Law, jaws for prisoner's wrist.



Hand and leg irons from 17th century were used on slave ships.

Only Houdini ever escaped from foolproof Bean handcuff.



Oddly shaped flexible handcuff was mass-produced 80 years ago.

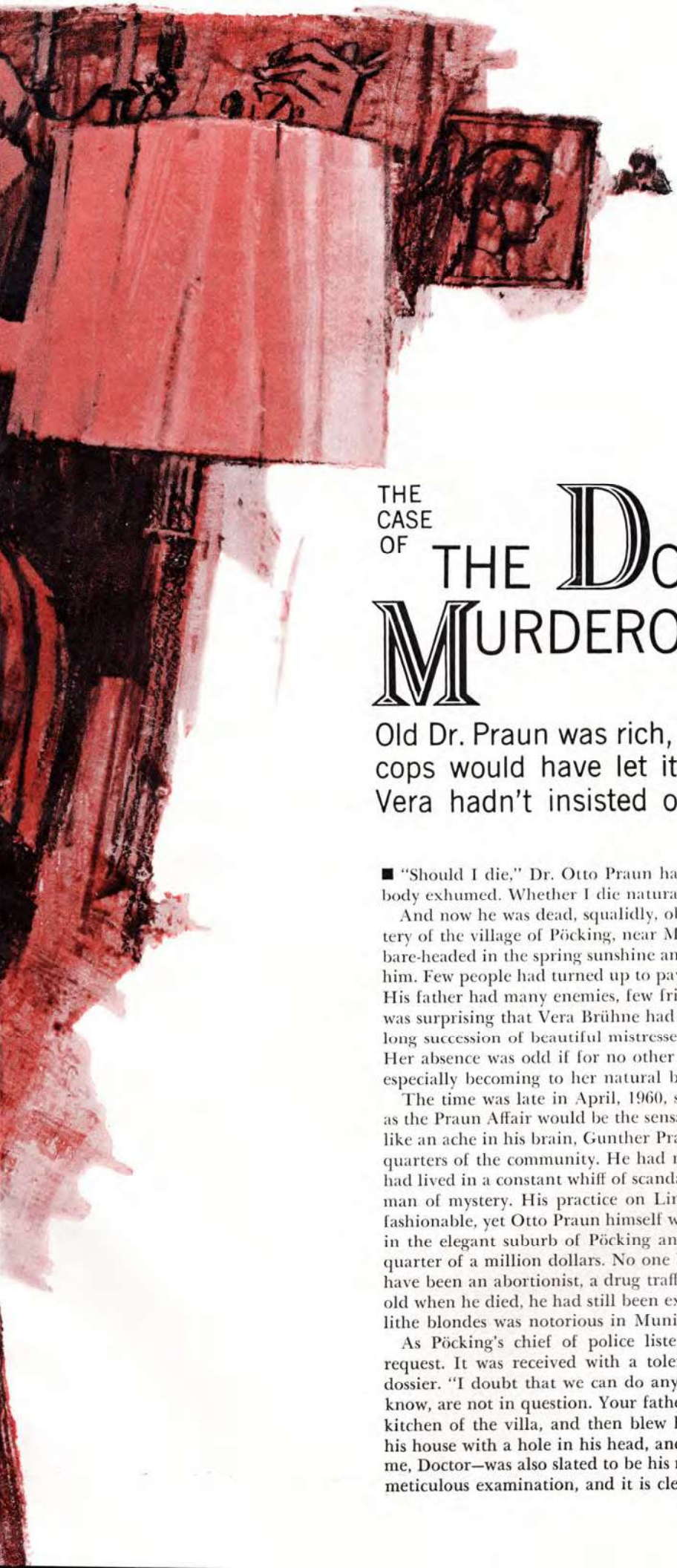
Modern thumbcuff is very secure.

■ Shackles are thousands of years old—in 400 B.C. an army of Greeks found a large collection of handcuffs in the chariots of fleeing Carthaginians. Before the 19th century only two kinds were in general use: a flexible handcuff similar to modern ones and a vicious shackle used to restrain the violent. The first American patent was issued in 1860. Our collection belongs to Frank Roshon of Phoenixville, Pennsylvania, whose original interest in locking mechanisms led to his huge collection of finger, hand, neck and leg irons.

Photographed for TRUE by Leonard Kamsler

These McKenzie mitts were used in U.S. to transport prisoners.

Exhilarated by whisky,
Vera cried, "That's
not what I said.
I said a murder party."



BY GEOFFREY BOCCA

ILLUSTRATED BY O. J. WATSON

THE CASE OF THE DOCTOR AND THE MURDEROUS MISTRESS

Old Dr. Praun was rich, lecherous, and now dead. The cops would have let it go at that if the voluptuous Vera hadn't insisted on calling attention to herself

MUNICH, GERMANY

■ "Should I die," Dr. Otto Praun had told his son cryptically, "make sure to have my body exhumed. Whether I die naturally—or not."

And now he was dead, squalidly, obviously by his own hand, and in the quaint cemetery of the village of Pöcking, near Munich, his son, Dr. Gunther Praun, aged 32, stood bare-headed in the spring sunshine and watched the body laid to rest. He looked around him. Few people had turned up to pay their last respects, which did not surprise the son. His father had many enemies, few friends. Nevertheless, thought the younger doctor, it was surprising that Vera Brühne had not come. Vera had been the latest in old Praun's long succession of beautiful mistresses, and had enjoyed many of the rich man's favors. Her absence was odd if for no other reason than that she had always considered black especially becoming to her natural blond hair.

The time was late in April, 1960, some two years before what was to become known as the Praun Affair would be the sensation of all Germany. His father's words throbbing like an ache in his brain, Gunther Praun left the cemetery and drove to the police headquarters of the community. He had no relish for what he was about to do. Otto Praun had lived in a constant whiff of scandal and notoriety. He was that rare thing, a genuine man of mystery. His practice on Lindworumstrasse was busy but humdrum, far from fashionable, yet Otto Praun himself was a man of immense wealth, with a beautiful villa in the elegant suburb of Pöcking and an estate on the Costa Brava of Spain worth a quarter of a million dollars. No one knew the source of his wealth. He was rumored to have been an abortionist, a drug trafficker, and a gun-runner. Although he was 65 years old when he died, he had still been extremely attractive to women, and his weakness for lithe blondes was notorious in Munich society.

As Pöcking's chief of police listened, Gunther Praun stammered out his father's request. It was received with a tolerant smile, and the officer took down the Praun dossier. "I doubt that we can do anything about it," the chief said. "The facts, as you know, are not in question. Your father shot his housekeeper, Frau Elfriede Kloo, in the kitchen of the villa, and then blew his own brains out. He was found in the foyer of his house with a hole in his head, and his gun in his hand. Frau Kloo—you will pardon me, Doctor—was also slated to be his mistress. Our Inspector Rodatus carried out a most meticulous examination, and it is clear that your father and [*Continued on page* 96]

AN EXCLUSIVE TRUE REPORT ON THE ARMY'S "NEW" RIFLE: After 20 the M-14 rifle. The brass should have saved themselves the trouble because the

THE U.S. ARMY'S BLUNDERBUSS BUNGLE

THAT FATTENED YOUR TAXES

WASHINGTON, D. C.

■ After nearly 20 years of Pentagon bungling that's cost U.S. taxpayers over $100 million so far, the Army is issuing our GIs a new automatic rifle that experts think is inferior to the gun we already have.

The rifle is called the M14. It's slowly replacing the M1 Garand carried by millions of servicemen in World War II and Korea. The only trouble is it doesn't work as well as the M1, and it's much harder and more expensive to manufacture.

If you haven't heard about the M14 or its troubled history, don't be surprised. The Army has been rather quiet about it lately, and with good reason.

The design, testing and production of the M14 were so badly botched that Defense Secretary MacNamara called the whole thing "a disgrace." And John C. Garand, inventor of the M1—of which the M14 is a bastardized version—worries about what will happen when it's used in combat. Reports from Vietnam indicate that Garand's fears may well be justified.

All told, the whole fantastic story of how the so-called "new" Army rifle was developed is beginning to sound like one of the biggest snafus in U.S. military history. The M14 may not turn out to be a disaster, but considering the time and money spent on it the results are certainly disappointing. At least this is the opinion of retired four-star Marine Gen. Vernon E. Megee, former Commander Fleet Marine Force, Pacific, and a rifleman's rifleman from Haiti and Nicaragua to Iwo Jima. General Megee's capsule description of the M14 project: "They labored mightily and brought forth a mouse."

But the punch line of the M14 story is even more fantastic than the blunders in the rifle's development. Now that the M14 is in production and is being issued to troops, it turns out that the rifle is not being put to the use that the Army claimed required its development in the first place. A fully automatic rifle, the M14 was developed to replace the semi-automatic M1 rifle. But 90 percent of the M14s currently being issued are set for semi-automatic fire only.

The M14 rifle is a case of too little and too late. The rifle represents too little improvement on what we've already got—the M1 Garand. The new design has come along so late that the rifle is probably already obsolete.

This situation is bad enough. Far more disturbing is the mounting evidence that the M14's design contains some potentially dangerous flaws.

The main weakness lies in the gas cylinder and piston that operate the M14. The system is a complicated and finicky beast built to such tight tolerances that it almost invites jamming in combat conditions. But rather than openly redesign the rifle the Army has chosen to quietly do a series of "modifications" on it that bear all the earmarks of a doctoring job to save the M14 from public exposure as a failure. This sort of attempt to make a bad bet come out all right is a hallowed tradition at the Pentagon.

The "new" M14 really began life in the closing days of

years of indecision and $100 million of your dough, the Pentagon has unveiled M-14 isn't as good as the gun it is supposed to replace **BY JOHN TOMPKINS**

World War II. Following the lead of some tinkering GI gunsmiths, Army Ordnance asked John C. Garand, its chief small-arms designer, to come up with a version of his M1 that could be fired full-automatic like a machine gun. As Garand recalls it now, he followed the design of the M1 fairly closely, making slight changes in the bolt, firing pin, ejector and other parts. He also added a 20-round detachable box magazine and a selector switch for full or semi-automatic fire. A muzzle brake was screwed onto the end of the barrel to help control climb in full-auto firing.

This altered M1 was called the T20 rifle and Garand says it tested out as a very successful design. To explain the designation: Army policy is to prefix a test rifle number with the letter "T." When it's modified in a major way an "E" is added after the model number. And when a rifle is adopted it becomes an "M"-numbered weapon. Anyway, if the war had continued the T20 would have been manufactured and used in large numbers as the M2 Garand. As it was, Garand had a number of them made up by hand and had completed several months of work on production tooling when the fighting stopped. The T20 was never issued to troops but development continued on it until 1947, by which time it was called the T20E2. At that point the design was shelved—though not forgotten.

While the T20 was being developed—in fact just before the end of the war—the Army told gun companies and inventors of its need for an entirely new rifle. The Army said it wanted a versatile rifle that would replace the M1, as well as the Browning Automatic Rifle (known to GIs as the BAR), the .30 caliber carbine and the M3 submachine gun or "grease gun." This was the kick-off on a 12-year boondoggle during which 10 rifles were tested, but the Army's own Springfield Armory designs always seemed to come out on top.

The doubtful objectivity of these so-called "tests" makes you wonder why the Army even asked for outside designs. It was like playing poker with a stacked deck, and of course the house won the game. Everyone knew the Army would win but the show continued for 12 expensive years anyway. The winning design, called the T44E4 was adopted in May, 1957, as the new M14 rifle.

What was the T44E4?

It was, and is, a cobbled-up version of John Garand's automatic M1—the wartime T20. After frantic efforts to design a really new rifle during the long years of testing, the Army ended up by going back to the only workable one it had. But the problem is that the Army messed up Garand's design with so-called improvements that are still causing trouble five years later.

As Secretary MacNamara observed, compared with building a missile system or a satellite, designing a rifle is a relatively simple job. It should have been. What happened during the years of the M14's development is a sorry record of failure, delay and double-dealing. It reflects the Pentagon's continued

Garand M1 Rifle

Browning Automatic Rifle

Fabrique Nationale Automatic Rifle

WHILE THE ARMY BUNGLED, PRIVATE INDUSTRY DEVELOPED ITS OWN RIFLE

• The AR15 in .223 caliber is one of the most successful military automatic rifles on the market today. Built with lightweight aluminum receiver and *Fiberglas* stock and fore-end, the AR15 Armalite was developed by the Fairchild Corp. The rifle was put into production in 1959 by Colt's Patent Firearms Manufacturing Co., in Hartford, Connecticut. Though the Army turned it down years ago and still says it's not seriously interested in the AR15, reports from Vietnam indicate that it's the terror of the Communist guerillas. In addition, the U.S. Air Force has spurned the Army's M14 and already has bought 8,500 AR15s itself. It reportedly wants 80,000 more.

What the Vietnamese like about the AR15 is that it weighs only a bit over six pounds—compared with nine and a half pounds for the M1 or the M14. While recoil is light, the .223 Remington's 55-grain bullet travels at 3,300 feet per second. Some arms experts claim that the real "shock" value of the .223 bullet is that being more unstable than a heavier one, it "keyholes" or turns end over end in living tissue and literally tears its way out.

The funny part of all this is that the Department of Defense is supplying Vietnam with AR15s rather than the Army's M14s. And it is admitted that this is a test. If so, the results to date are highly satisfactory. A U.S. military observer on the scene in Vietnam recently reported that the AR15's "light weight, range and casualty effect are all that could be asked for."

AR15 Automatic Rifle

arrogance in never conceding that anyone outside the service can come up with a good idea.

The reason that Garand's highly successful T20 was shelved in 1947 was that the Army wanted "a more radical and comprehensive solution" to the problem of a new rifle. You can hardly quarrel with this aim, but every time they got near it they turned their back on the target.

The search for a radical solution to the rifle problem began, logically enough, with a new ammunition. The new cartridge—a shortened version of the .30-06—was designated the T65.

At about this time NATO was formed. In a fine spirit of cooperation it attempted to standardize weapons and ammunition. The first step was the rifle cartridge. The British, who had been working on a new one since before World War I, wanted their .280 caliber round adopted by NATO. In this they were joined by the Belgians and several other countries. But our Army, while chivalrously agreeing that the .280 British might be even better than our T65 for rifle use, pointed out that the "new" rifle we were looking for would also be a machine gun and needed a heavier punch. So the Army doggedly insisted on the T65 and designated its size in millimeters—7.62 mm.—to show our European allies we were really NATO minded. This particular attempt at cooperation ended with both sides going ahead on their own ammunition.

Meanwhile the search for a new rifle was proceeding with painful slowness. Between 1945, when the project was officially started, and mid-1952 only $1,900,000 was spent on it. For several years only *one* engineer was assigned to the job at Springfield Armory. Still, the first rifle design that emerged from this long sleep seemed quite new and radical. It was a straight-stock, high-sightline, pistol-grip rifle that weighed only 7½ pounds—two pounds less than the M1. It had a non-rotating hinged bolt powered by the same gas system that later showed up on the M14. The Army christened its new baby the T25. After spending several years trying to make it work right the Army decided to order 5,000 of the new rifles for a major field trial. The size of the order indicated that the brass felt their T25 was the rifle they'd been looking for. But the order was canceled and never reinstated due to "international complications." This was 1950 and the complications were that two of our NATO allies—Britain and Belgium—appeared with new automatic rifles and asked us to test them before going ahead full blast with our T25.

Confidently, the Army agreed to test the two foreign rifles. One was the British EM2, a really radical design with the magazine and action behind the trigger somewhat like the "bull-pup" type of sporting rifle. The other was the popular FN rifle designed by the Belgian firm of Fabrique Nationale d'Armes de Guerre. Among its features was a hinged action that folded down for easy removal of parts. Both rifles were in .280 caliber. The shooting was done at Fort Benning, Georgia, and when the smoke had cleared the Army was appalled to find that its darling T25 had scored lower than either the EM2 or the FN rifles. The story should have ended right there, but the Army was not confused by facts. They knew they had an easy out.

The Army announced that *none* of the rifles was really up to par, but that it preferred to stick with its 7.62 mm. cartridge and try and correct the faults of the T25 rather than go along with either of the competing rifles. A frenzied attempt to save the T25 followed. Many modifications of it were made up and test-fired, but it was no go. What the Army did then was to take the T20s (the automatic M1s) out of the storeroom and rework them into a "new" rifle called the T44—which is now in service as the M14. That this rifle had been shelved five years earlier for "a more radical and comprehensive solution" seemed to trouble no one.

The strangest part of the revival, however, was that the Ordnance designers insisted on transferring the gas system from the unsuccessful T25 to the well-performing T20. This gas system, unlike the simple loose-fitting piston and cylinder of the M1 Garand, uses a special hollow-headed piston that closes off the gas port like a sliding valve in an engine. It was invented in 1921 by J. C. White of Boston. White claimed that his design allowed the powder gas to expand slowly and operate the action softly. His idea was rejected by the Army in 1930, but bobbed up again 20 years later. Why the White system returned is hard to explain, though the official reason for it is the same one given by its inventor back in the 1920's. But John Garand says flatly: "The sliding valve is bunk—I tested it and it doesn't work the way they claim." If you ask him why the Army used it anyway he says that "somebody" has been trying to sell the White gas system in Washington for years and that "somebody" in the Pentagon likes it. He refuses to name names but does say that tests on the gas system were made by outside firms which reported what the Ordnance people wanted to hear, rather than what happened. After that shocker, Garand, who spent nearly 40 years working for the Army, says, "That's bad business, but that's the way things are."

If you keep this small sample of military objectivity in mind, the rest of what happened in the great M14 rifle snafu will be less surprising.

Even if the White gas system worked as the Army claims, it's still difficult to make and possibly dangerous to use. The manufacturing problem comes from the close tolerances the system needs to function. They're on the order of seven times as close as the system in the M1. The maximum distance between the M1 piston and cylinder is about three-and-a-half thousandths of an inch; on the M14 it's about half of one-thousandth. This is a little like trying to make automobile pistons fit without rings. On a piece of machinery like a rifle this tightness invites trouble.

Some people in the Army are aware of the problem and before the M14 came along they were looking for ways to make the M1 gas system even looser than it was. Each shot in a gas-operated rifle produces carbon and when you add this to dust or mud coming in from outside you have a potential clogging problem. In Washington there are already grapevine reports from Vietnam that the M14 is having just this kind of trouble in full-automatic firing. Some M14s are being battle tested in Vietnam; the M1 is also in use in Vietnam, as well as the civilian-produced AR15 (see box).

But to return to how we got into the mess. If the Army thought that rejecting the EM2 and the FN rifles because they were in a different caliber got rid of the opposition, they were very much mistaken. What happened was that the British and NATO finally agreed to adopt our 7.62 mm. round under a gentleman's agreement that we would adopt one of the NATO rifles. Then the British dropped their EM2 in favor of the FN rifle and the Belgians appeared on our doorstep and offered it to us. Unable to resist anymore because of the cartridge, the Army had to take NATO's most popular rifle seriously. So the testing began, but before it was over the Army had reason to wish it had never started. As one high-ranking Ordnance officer said later: "We never thought it would do very well, so we did not keep the FN out of the tests."

At first it seemed that this presumption was justified. The Belgian rifle, renamed the T48 for test purposes, performed very well against our own T44, which [*Continued on page* 114]

VIP VIEWS THE HORSE PLAYER

...as seen by his boss

...as seen by his bartender

...as seen by his bookie

...as seen by his wife

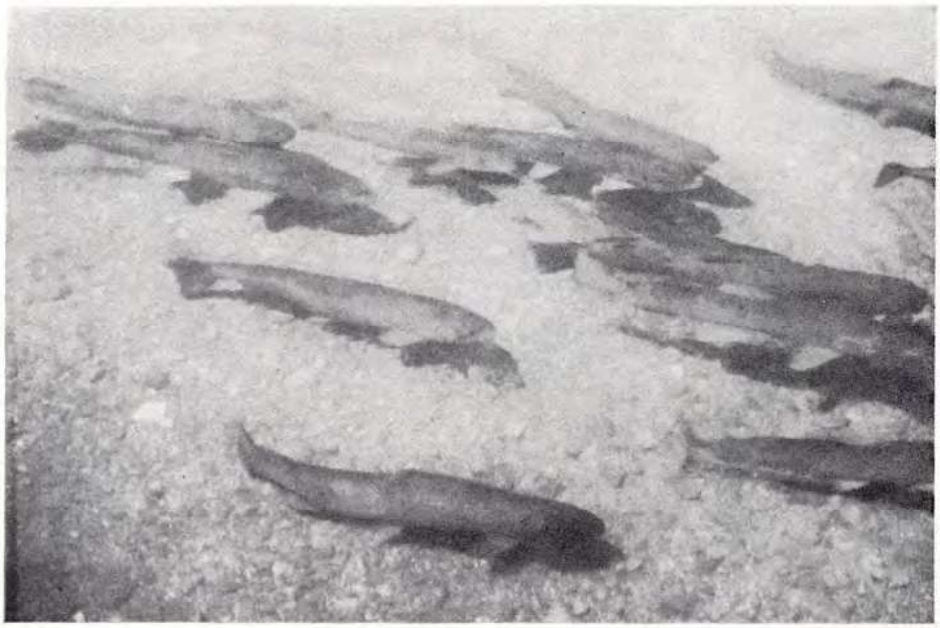
...as seen by the tout

...as seen by his fellow bettors

...as seen by the pawnshop owner

...as seen by his kids

...as seen by the race horse



WE FISHED TO THE END OF THE WORLD

Down Argentina we went, sampling the superb trout and landlocked-salmon fishing. But not till we reached land's end did we find sport such as anglers only dream about

By DANIEL P. MANNIX

PHOTOGRAPHED FOR TRUE BY THE AUTHOR

ARGENTINA

■ In 1903, Dr. J. W. Titcomb, an American fisheries expert, was employed by the Argentinian government to introduce trout and landlocked salmon into the Bariloche lake district high in the snow-crusted Andes. These lakes were full of *puyen* and *pejerrey;* small fish which turned out to be the perfect food for the newcomers. Soon bug-eyed anglers were returning with tales of huge fish that fought each other for a chance to get at any sort of lure. Bariloche quickly became known as one of the world's finest fishing centers and the experiment was considered a great success by everyone—except possibly the *puyen* and *pejerrey* which were virtually exterminated in many sections.

To test the truth of these rumors of fabulous fishing, a heroic little group of anglers gathered in New York in November, 1961. We were leaving on a three weeks' fishing trip that would embrace many Argentinian fishing spots from Bariloche to Tierra del Fuego, the southernmost community in the world. After a final round of drinks, we agreed to throw back all trout under 30 pounds and all salmon under 70. Some of the group gravely discussed the feasibility of using 20-pound salmon for live bait.

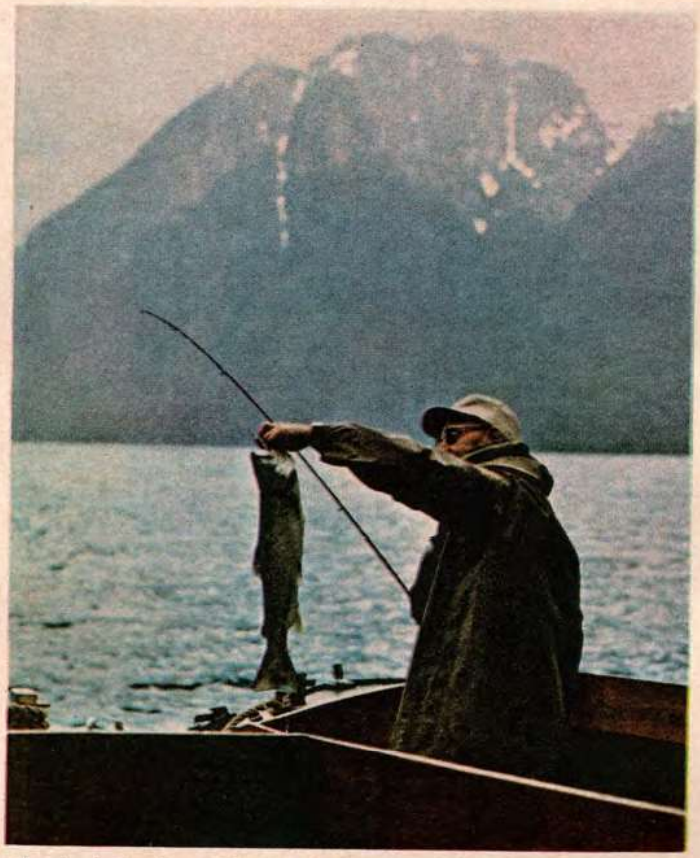
Everyone was a dedicated angler. There was Col. L. P. Miller, a slender, erect army officer who had fished everywhere from Bavaria to Japan. A Texan with a drawl you could have cut with a corn pone, the colonel was now retired and a recognized expert on both fishing and sour-mash bourbon. There was Arthur Johnston who had flown down from Toronto and had been awarded a silver cigarette case for catching

Attended by local guide, Ivan Brady faces windy challenge of Lake Nahuel Huapi.

WE FISHED TO THE END OF THE WORLD

Best lake fishing was found where streams made foaming inlets, like this one on Lake Mascardi in Bariloche area.

Tierra del Fuego: bad roads, good trout.



Brady hefts first fish of trip, a 4-pound landlocked salmon.

bonito on light tackle off Bermuda. There were also Mr. and Mrs. Ivan Brady of Edwardsburg, Michigan. Brady was a retired banker who was systematically fishing his way around the world, having so far disposed of Alaska, Nova Scotia and Florida. Mrs. Brady, with a devotion that bordered on the masochistic, intended to accompany him while pathetically clinging to the notion that *somewhere* she'd find a fishing camp with accommodations for women. Lastly, there was Juliet Bridgman, our talented tour directoress.

At Buenos Aires our party was joined by C. B. McCormick, a consulting engineer for *Eveready*, who described himself as "semiretired." This apparently meant that Mister Mac traveled around the world as troubleshooter for the various *Eveready* plants with the understanding that having solved any crises that might have occurred, he could then devote himself to the serious problem of fishing. Changing planes, we embarked for Bariloche, 3,000 feet high in the Andes.

At the airport we were met by George Kennard, an English travel agent who had decided to stop freezing to death in unheated flats in London and freeze to death in style in the Andes. We were also met by a 20-mph wind blowing off the snow-covered mountains. Both George and the wind were with us throughout our stay in Bariloche. We were glad to have George.

Bariloche turned out to be a collection of Swiss chalets miraculously transported to South America. The town was originally settled by Swiss immigrants because the mountains reminded them of home and German is spoken as currently as Spanish. It is a famous ski resort and formerly came to life only from May until September (the Argentine winter) but now when the skiers move out, the anglers move in as the fishing season runs from November 1st to April 15th, to the intense satisfaction of the hotel owners. When we arrived, it was the first Sunday of the fishing season and the town seemed deserted: everyone being out fishing. George took us to our hotel and we were soon established with our backs to a fire and facing a huge picture window framing a panorama of majestic snow-clad peaks.

"You've come down a little early," George explained. "During November and the first part of December, the rivers are still in flood from melting snow. So I think trolling on the lakes will be your best bet. In general, you can count on the fish being about twice as big and three times as numerous as in the States."

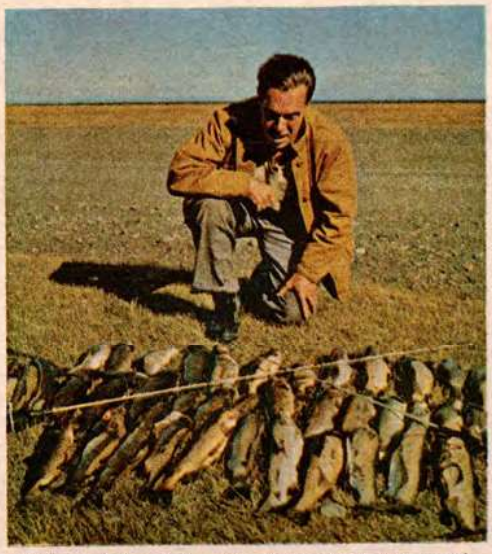
"I'm a casting man myself," protested Ivan Brady. "When I'm too old to stand I'll go trolling from a wheel chair." But Ivan's objections were overruled and at dawn the next morning we drove to Lago Moreno, the first of the chain of lakes we were to troll that day. It was on this chain that in 1952, Eugenio Cavaglia of the Nahuel Huapi Fishing and Hunting Club caught a brown trout weighing 36 pounds; only 3½ pounds less than the world record caught in Loch Awe, Scotland, in 1866.

At the wharf, two cabin cruisers were waiting for us with Indian guides at their wheels. The wind had increased, coming down from the mighty Tronador Glacier which is 9,900 feet high. The brown lake was coated with whitecaps like frosting on a mocha cake. I asked the guide what he thought our chances were in my fluent high-school Spanish. After showing me where the toilet was, offering me a bottle of beer, and explaining that if I wanted that sort of thing I should have stayed in Buenos Aires, he caught my meaning.

"Señor, no one but an idiot or an American tourist would go fishing in this weather. But it's all one to me—death means nothing to an Indian."

Ten minutes after we had left the wharf, I saw what he meant. Our craft was smothered in flying spray and it was only during those rare moments when we breached that the guide could see to steer. I caught an occasional glimpse of the other boat which seemed to be making a sporting effort to turn itself inside out. Luckily for us, the [*Continued on page* 91]

Unnamed river at world's end seemed literally trout-paved.

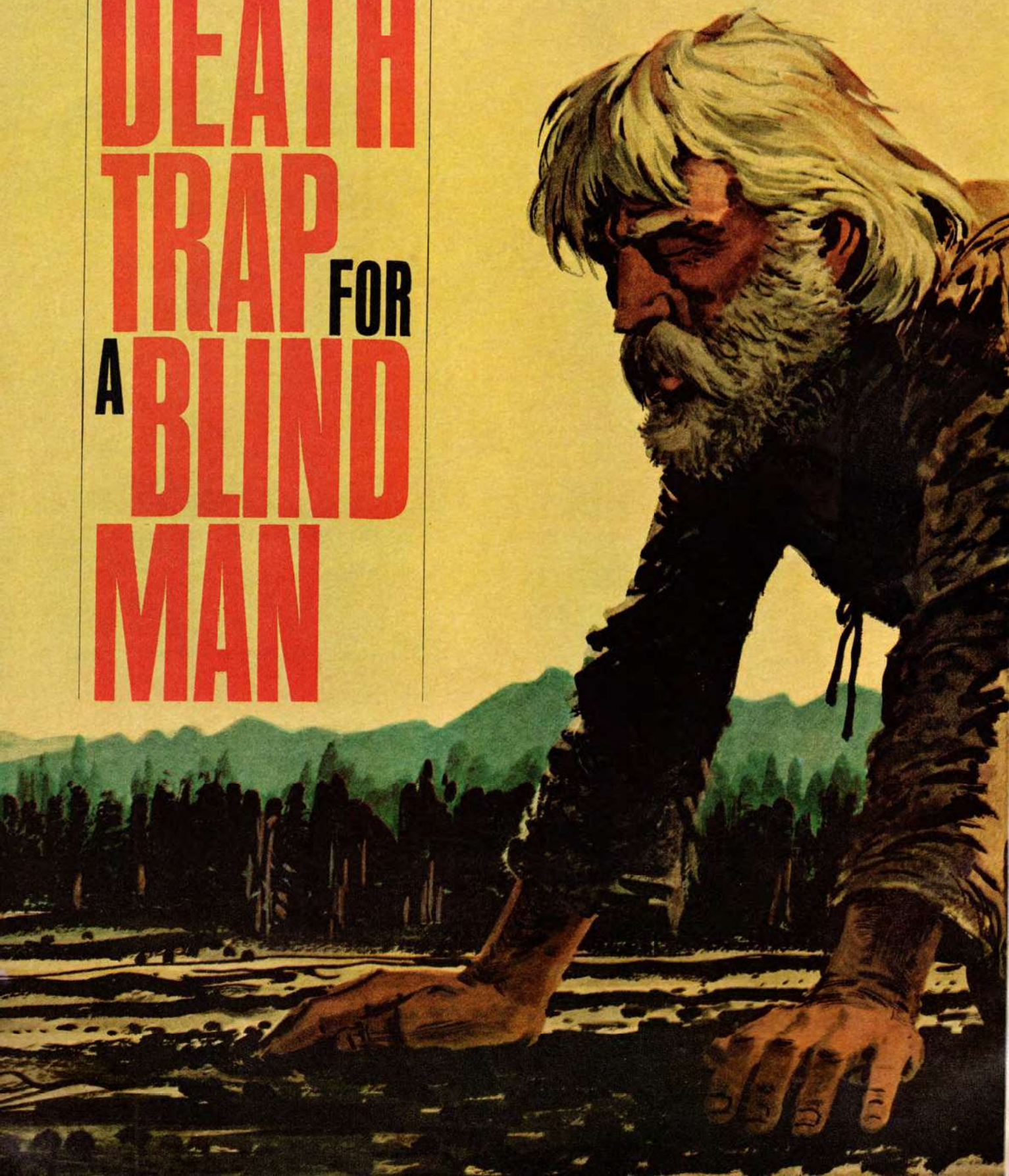


Arthur Johnston with part of 78-fish catch.

Mannix threw back many trout like this.

He was being stalked like an animal. Behind was a pack of pursuing savages. Ahead were the Rockies, lashed by snow. How could a sightless man escape?

DEATH TRAP FOR A BLIND MAN



by NORMAN CARLISLE

ILLUSTRATED BY FRED LUDEKENS

■ "Let's go back and get the gold!"

When he made that proposal, big Lou Crandall thought he had the odds pretty well figured. Risks? Sure, there'd be some, venturing into that hostile Blackfoot territory in northern Idaho where he'd located an outcropping of incredibly rich quartz. But Crandall, a veteran trapper, and his friend, George Williams, told themselves they could dig out a fortune in gold and get clean away before the Indians even spotted them.

Crandall was a bold man, used to hard knocks, but he would have been incredulous if he could have foreseen the fantastic denouement of that gold-hunting venture. And later, as the story of his exploit became a topic of head-shaking conversation around the campfires and barrooms of the West, a lot of other people would find it hard to believe too, except for one fact: there were 20 witnesses who had reason to swear fervently to the reality of Crandall's black ordeal.

It began on a crisp November morning in 1868 when Crandall looked out over the grassy mountain meadow near the little mine. A shock ran along his husky six-foot frame. Something was moving at the edge of the encircling forest.

"Blackfeet!" Crandall yelled, and heaved on the windlass to bring his partner up from the hole they'd dug. When Williams stood beside him, the two men stared at each other in utter horror.

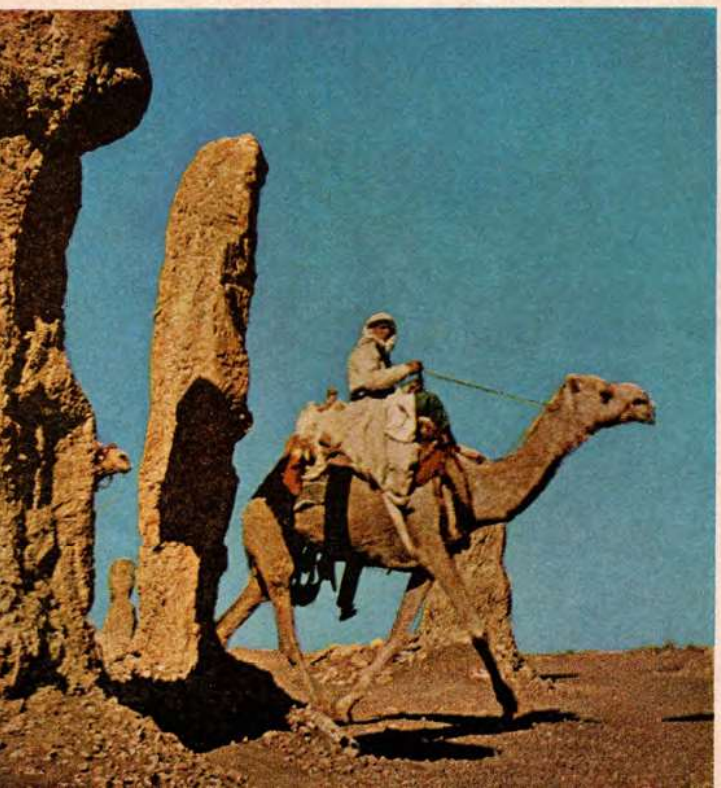
"My God, the gold!" Williams cried.

Crandall [*Continued on page* 106]

Camels become as attached to their owners as pet dogs.

Four-Legged Ships of the Sandy Seas

Lack of stirrups makes it advisable to hold on to saddle.



JORDAN

■ According to the Bedouin, the supercilious look for which the camel is noted is due to the fact that Allah has a hundred names. Man knows 99 of them, but only the camel knows the hundredth. Therefore it is superior to all other beasts. You can't curry favor with a camel by offering it sugar —it might take your finger off. You can't pet it. Like as not it will spit in your eye. Yet to the Bedouins, who know the camel best, it is called "Ata Allah"—God's gift. A Bedouin knows the track of his own camels and, very often, can remember the track of every camel he has ever seen. An expert can tell the area from which a camel has come. Soft soles with tattered, loose skin indicate camels from the sands. Finely polished soles show camels from the gravel plains. A good tracker can tell what tribe a camel belongs to, where it has grazed, where it watered, how long it has been ridden.

Camels are kept for their milk and for transport, as they have been since prehistoric times. The milk, although it contains no cream, is highly nourishing, and the great desert herds consist mostly of females, the males being used for breeding and to carry heavy loads. Some strains of camels can carry as much as half a ton at a steady 2½ miles an hour. Other breeds can carry a load 100 miles in a day.

In the winter, when grazing is comparatively good, camel herds are not watered but get moisture from shrubs and grasses. As the weather warms up, herds are watered every seven to nine days, and when the temperature gets to 125 degrees in the shade, they are watered every two days if possible. A camel's stomach is constructed like a series of tanks that enable it to store water.

Camel riding takes a lot of getting used to. The saddles have no stirrups so the rider is obliged to hang on by hooking one knee around the front pommel and crossing his ankles, while the rear pommel jabs him in the rear. The camel kneels for its rider to mount, raises its hindquarters, then lunges upward with its front legs, throwing the rider against the rear pommel and quite likely bouncing him off the front one as well. Camels can't be guided by knee or by leaning to one side or the other. There is no bit on the halter so tugging on that isn't much help either. A rider's only control is a camel stick used to touch the camel's neck to move it right or left, to which the camel may or may not respond. When going at a trot, a camel moves both legs on one side like a pacer, producing a sidewise sway for its rider. At a gallop, it changes into overdrive and leaps like a kangaroo. A combination of the two motions is guaranteed to produce seasickness in even the best sailor.

Strong-willed camel, decked out for its appearance in the movie "Lawrence of Arabia" (top, left), reluctantly obeys urging of head camel handler and his cautious helpers to get up and get to work (bottom).

Text and Photographs by SID LATHAM

Famous Jordan Desert Patrol claims to have the swiftest and best-trained racing camels in the world.

FURIOUS RACER TO NOWHERE

To set an early record Meiffret pedaled behind a Talbot racing car, below, using a bike with an enormous sprocket.

Jose Meiffret is the world's fastest bike rider. He has devoted his life— and brushed with death— to set records nobody gives a damn about

BY ROBERT DALEY

Meiffret ducks behind the windbreak on a Mercedes 300SL, above, setting a new bike speed record of over 115 mph.

PARIS

■ With helmet on and chin strap buckled, the man seemed, if you did not look too closely, a different person. The helmet hid his baldness, his lined haggard face, his age. It also hid the concave patch on his forehead where stretched scar tissue covered a gap in his skull. For a moment it was possible to see the man as hero, daredevil, champion, about to risk his life pedaling a bicycle 110 miles an hour or more behind a racing car. Then the face under the helmet gave a sad, lonely grin, and you saw him again as José Meiffret, five feet, three inches tall, nearly 50 years old.

From the center of his white jersey a skull and crossbones grinned out at the world. Over his heart was tacked the word: FRANCE. To the right was the word: VOULOIR. In French *vouloir* means to will or to want. Meiffret believed that a man could do anything, if he just wanted to badly enough. Even pedal a bicycle 110 miles an hour, and live.

The engine of the nearby racing car was idling slowly. Now as Meiffret signaled to timekeepers and officials, the two ambulance drivers jumped into their seats and doors slammed solemnly. Meiffret shook hands all around, then walked his thick cumbersome bike into the road.

There were people stretched along both sides of the road for nine miles, and on the overpasses too, most of them expecting something dreadful to happen. Meiffret straddled his bike. In the knot of friends and officials behind him, faces were tense.

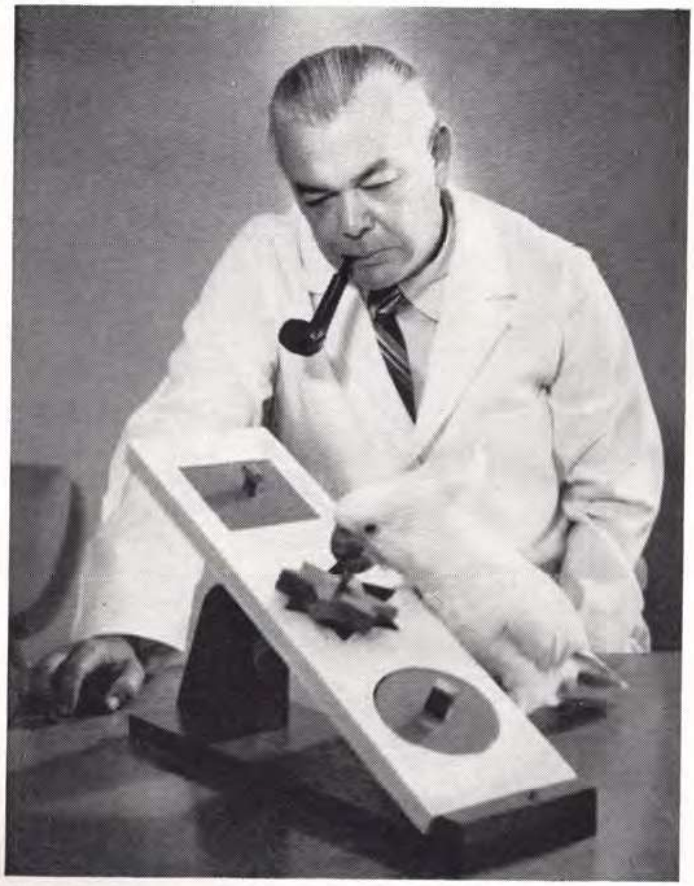
The bike was rolling, Meiffret leaning far out over the handlebars, straining to push the pedals around, his face taut. Slowly the bike gathered speed, the racing car moving alongside. Now the bike's huge sprocket was turning fast, the bike rolling at 45, 50, 55 miles an hour, Meiffret still straining to pump, faster, faster. He ducked in behind the shield which sprouted upright from the tail of the racing car and now in the windbreak tucked his head down and pumped as hard as he could. Now he was pedaling at 80 miles an hour, now at 90, 95, 100. In a few seconds he might be rolling faster than any man had ever pedaled before. Or he might hit an air pocket, a pebble, a bird—no one would ever know at such speed what had thrown him off the bike.

At the starting point, his friends waited in agonizing silence, the question flashing again and again through their minds. Why? What made this small, middle-aged, broken man attempt to surpass an insanely dangerous record—109.1 miles per hour on a bicycle—which was his already, a record worth nothing commercially, a record not even of outstanding interest in Meiffret's own country?

Meiffret himself had given them their answer, when he said: "At such speeds I belong [*Continued on page* 118]

HE TURNED BARNYARD INTO BOX OFFICE

By RUFUS JARMAN



Breland can train birds or animals with his "reward" system.

HOT SPRINGS, ARK.

■ As day breaks over the tousled terrain of central Arkansas, a certain rooster by the name of Casey greets the dawning with an exhibition of traditional and unorthodox behavior. His great comb aflame with hearty male hormones, Casey, a handsome bantam, struts, clucks, claws, stomps, strides up and down, glares fiercely at the world around him, and then salutes the early sun with a stirring series of clarion calls, according to the finest traditions of his kind since time began.

But then—the rooster marches up to an 18-inch-long baseball bat, mounted an inch above, and parallel with, the floor of a miniature baseball field, about seven feet square. With his beak, he plucks at a rubber-covered wire loop attached to the bat handle. This causes an electrical motor to swing the bat, and knock a ping-pong ball through the infield and on beyond.

The rooster watches its progress. If the ball gets safely past the eight-inch-tall defensive players, stationed about the field, and if it has been belted hard enough, the pellet eventually strikes the centerfield fence. This causes a bell to gong, and an electric bulb, built into the floor beside each base, to light up.

Casey trots down to first. As he steps on the bag, the first base light goes out. He gallops on to second, then to third, carefully stepping on each base so as to extinguish its light. He crosses home plate, takes a look to be sure the light has gone out, then canters into the dugout for a spot of breakfast.

A minute or so later, he emerges, and goes through the entire process again, and so on as morning approaches noon. After two or three hours, Casey is so tired and full of food that he is more interested in glowering and stomping than in hitting the ole ball. Whereupon, he is removed from the lineup, and replaced by an earnest, hard-working white leghorn hen, who goes about her workout efficiently, but without the struttings and noise of her predecessor.

"She's as steady as a rock," Keller Breland, who owns the baseball-playing chickens, remarked the other day, "but she hasn't got his style."

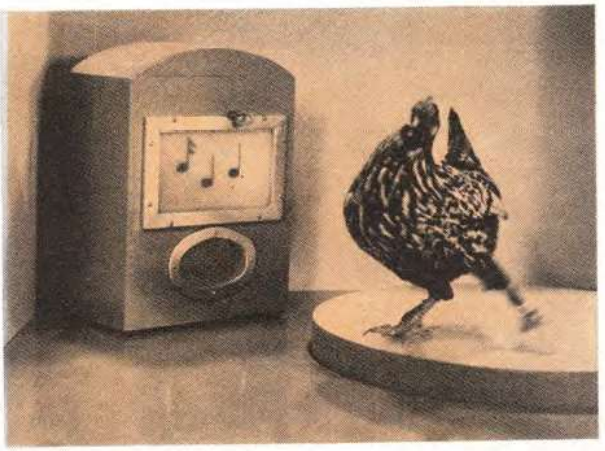
During the past 15 years, Breland's farm has trained hundreds of hens and roosters as batsmen and baserunners, and Keller has grown very accustomed to seeing a feathered Casey at the Bat. In fact, he often finds himself unconsciously taking the attitude that poultry was put on earth—not to lay eggs and awaken the world with cock-crow but—to accumulate batting averages and steal bases.

Breland, who hails from Poplarville, Mississippi, is a lusty, gusty, two-fisted, 47-year-old graduate psychologist. He enjoys drinking bourbon whisky and chomping upon a sturdy briar pipe, and he feels that most members of his calling are inclined to be too esoteric and long-hair for the good of the profession. The time has arrived, Breland feels, when psychologists by the hundreds should emerge from the laboratory and the library, and become active in the practical affairs of commerce, industry and the social sciences that seethe and simmer just outside their classroom doors.

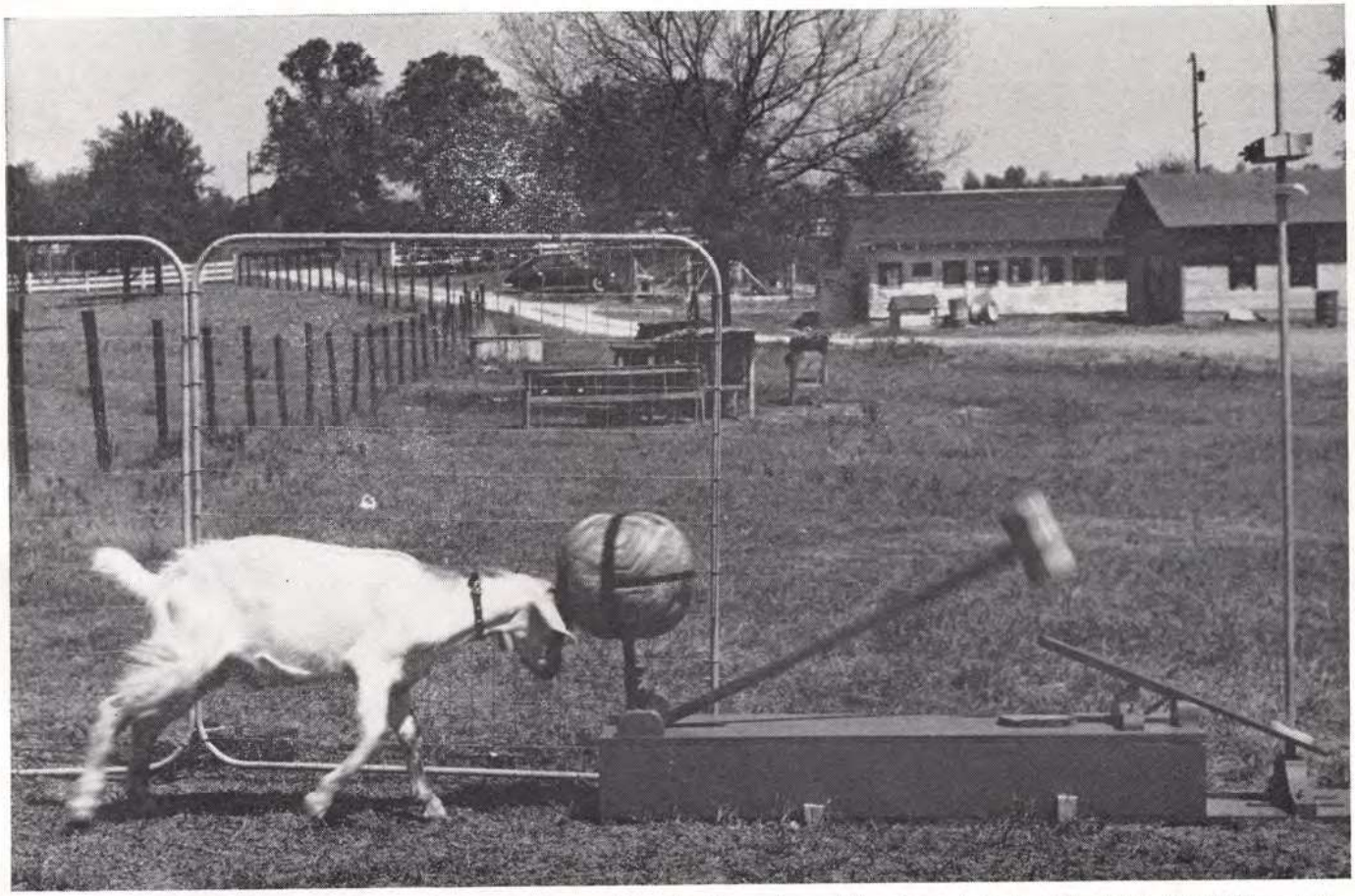
In his case, this shaking off of the academic shackles has taken the form of training more than 7,000 individual animals since 1947. This is almost certainly a world record for sheer numbers. He and his wife and business partner, Marian "Mouse," also a graduate psychologist, are the first to use recognized principles of animal psychology to teach their charges to perform for such commercial purposes as advertising products and for the enjoyment of humans, who will pay to see the show. Their performers represent 40 different species, ranging from whales to hamsters, and they include skunks, pigs, turkey gobblers, "Buck Bunny," a

For over 15 years, psychologist Keller Breland has been training animals—from whales to hamsters—to do unlikely, amusing or scientific feats that almost defy belief. Here's how

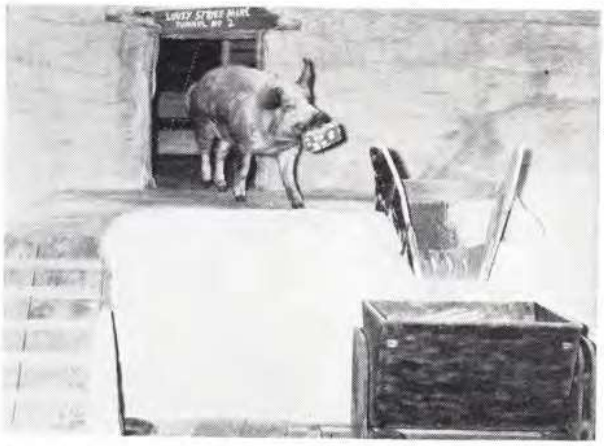
By pulling chain, hen sets a little juke box going . . .



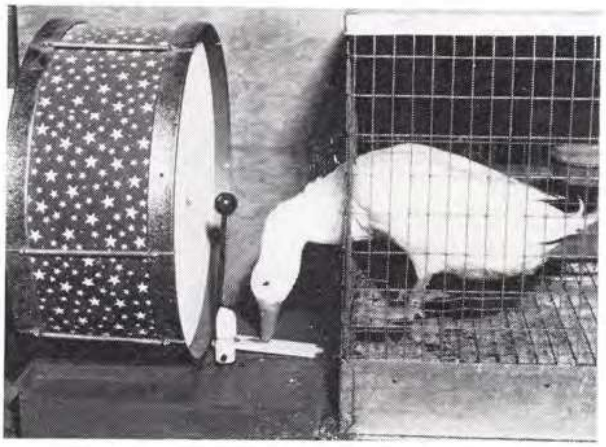
. . . then she mounts a low platform and does the Twist.



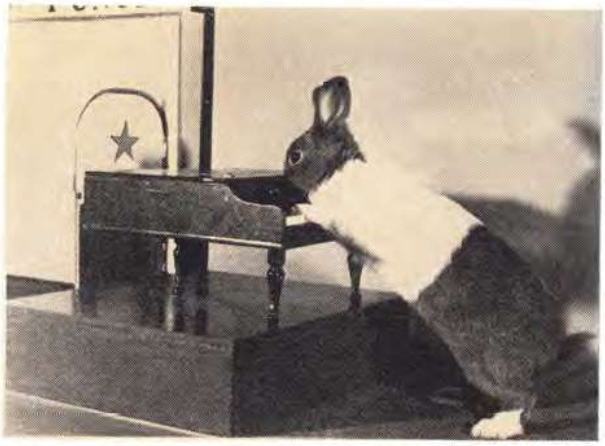
Goat butts large rubber ball, ball activates mallet, mallet hits lever, lever flips ring up pole and clangs the bell on top.



In Breland's training barn, a pig works a gold mine . . .



. . . while a duck keeps banging a drum until rewarded.



No Van Cliburn, sure, but this rabbit plays a hot piano.

HE TURNED BARNYARD INTO BOX OFFICE

Polly wanna drink of water? Polly get it for herself.

celebrated performer on television, and "Rudolph The Red-Nosed Reindeer."

The latter reside in three Santa Claus Villages, two in California and one in Illinois, where the Brelands have instructed herds of reindeer to run printing presses and hand out Christmas cards.

As consultants to Marine Studios, at St. Augustine, Florida and Marineland of the Pacific, in California, Animal Behavior Enterprises, the Brelands' company, is mainly responsible for the recent recognition of the porpoise as one of animal-land's great Thespians. The firm also instructs the trainers of exotic birds at the Parrot Jungle and the Caribbean Gardens, located in south Florida.

Breland-trained animal acts have been featured for half a dozen years at the Municipal Zoo at Fort Worth, Texas, and at Swope Park, Kansas City. Their performing units of chickens, rabbits, ducks and pigs are great favorites along the county fair and the convention circuits, where they have pushed the products of business concerns such as General Mills Inc., Socony Mobile Oil Co. Inc., Pennsylvania Refining Co., Steiner Sales (a division of American Linen Supply Co.,) and the Griffith Laboratories Inc., (chemicals for the meat packing industry).

Recently, Keller has been conferring with the U.S. Fish and Wildlife Service about possibilities of installing automatic dispensing devices on game preserves so that wild deer, for example, might spray themselves with a de-lousing elixir, while partaking of a reward of food, handed out by the machine.

In the past, Breland has used the principles of animal psychology to cure bird dogs of gun-shyness. By using a different application of the same principles, he claims that he can instruct the naive type of trout, raised artificially for stream stocking, to ignore the obvious lures of neophyte fishermen, and go only for the subtle enticements offered by the more sophisticated anglers.

The Brelands own the I. Q. Zoo, a year-round attraction of a dozen acts at Hot Springs. They rent or lease 75 to 100 other individual acts, currently on display in shopping centers, tourist attractions and store windows in 17 states.

Thirty or more new acts are in training all the time at headquarters of Animal Behavior Enterprises, a 280-acre farm just outside Hot Springs. In its principal training barn, the exploits of the baseball-playing chickens tend to become obscured among the conglomeration of extraordinary feats being performed constantly by other animals at the same time in the same barn. Here are some of the events taking place in individual cages forming one long aisle:

"Casey" hits a home run, and gets paid off in dugout.

Basketball is raccoon's sport; other tricks confuse him.

A Dutch Belted rabbit relaxes upon the floor, wrinkling its nose, wiggling its ears, nibbling away at nothing until a low-toned buzzer alerts it to action. The bunny hops to a side of its cage, and, with its teeth, lays hold of a lanyard attached to the breech of an eight-inch (long) cannon. He pulls the string, and a ping-pong ball arches through the air toward a bull's-eye target seven or eight feet away.

If the lanyard has not been yanked hard enough, the projectile falls short. On the next shot, the rabbit knows to pull harder. Each time a ball strikes the bull's eye, a light flashes and a bell rings. When he has scored three hits, the rabbit abruptly deserts his post and repairs into his hutch for a bite of lunch, which has been mechanically laid after his third bull's-eye.

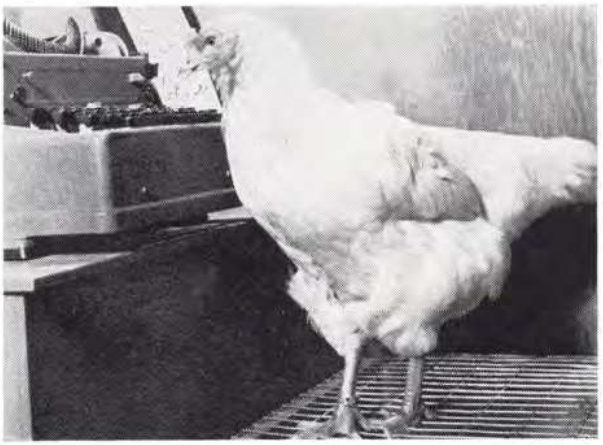
The rabbit repeats his marksmanship over and over. He can outlast the ball-batting rooster, because the rabbit's food-carrying capacity is greater. Furthermore, his movements lack the energy-consuming enthusiasm and fire of Sir Chanticleer.

In each of several cages, a duck will arise periodically, waddle over to the side of the cage, and begin striking a metal plate enthusiastically with its beak. The plate activates a mechanically-powered drum stick, mounted on a hinge, which assaults an 18-inch drum with devastating effect upon the eardrums.

A rabbit is punching a bag in a cage down the way, and on beyond a second rabbit is shooting a bow and arrow. In still another cage, built like a miniature dream cottage stage set, a lusty male rabbit is smooching a plastic lady bunny over the back fence. Meanwhile, in their respective compartments, a hamster climbs a short ladder, then shoots down a slide. A squirrel jumps through a hoop. A goat takes careful aim, then, deliberately and firmly, butts a large rubber ball on the end of a metal arm, and a striker sends the ring flying up the pole to clang the bell. A pig is pushing a toy vacuum cleaner over the carpet of a bedroom set. A chicken walks out and pulls a chain that sets a little juke box going with wild music. The hen then mounts a low platform, and does the Twist.

Facing up the aisle from the end of the row is a sedate drawing room set, including a two-foot-high floor lamp and a miniature grand piano. Presently a large, plump, barnyard-style duck steps in the door, walks purposefully to the floor lamp, reaches up and turns it on. Then the duck steps over to the piano, and begins to play, striking the keys great blows with its bill.

And all the while, high above these proceedings, a matronly Rhode Island Red hen is walking on a 20-foot tight rope. When a light flashes and a buzzer sounds in a little house where she waits [*Continued on page* 77]



The hunt-and-peck typing system is fine for chickens.

In this rigged game, the chicken picks the high cards.

A THRONE FOR THE ABSOLUTE RULER

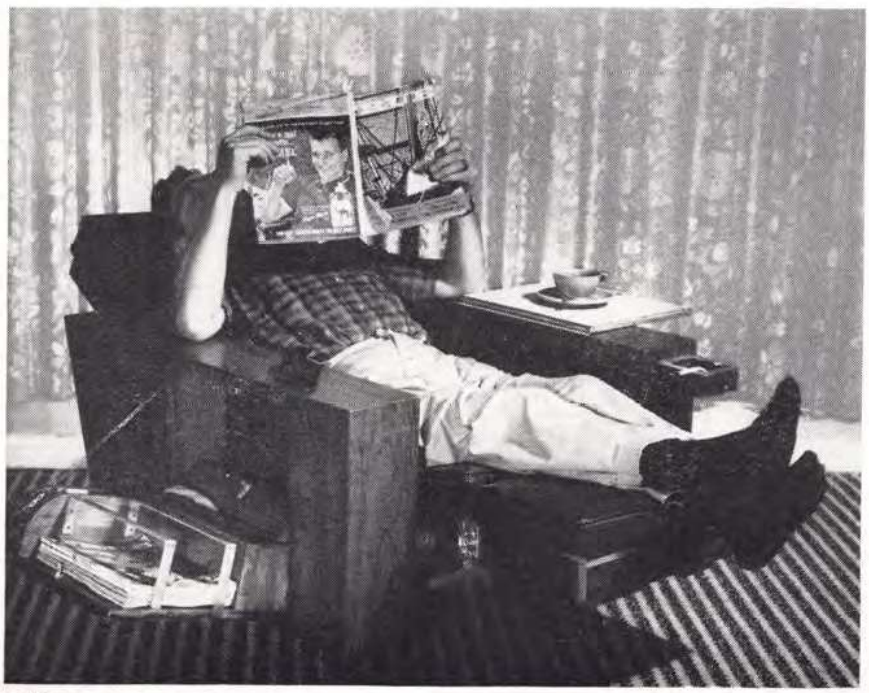
IN THIS ROYAL SEAT THE KING OF THE HOUSE CAN ISSUE HIS COMMANDS WITH AUTHORITY, THEN EASE HIS CARES WITH GOOD READING, SOFT MUSIC, A DRINK, A SMOKE AND SLIPPERS

BY BILL BAKER

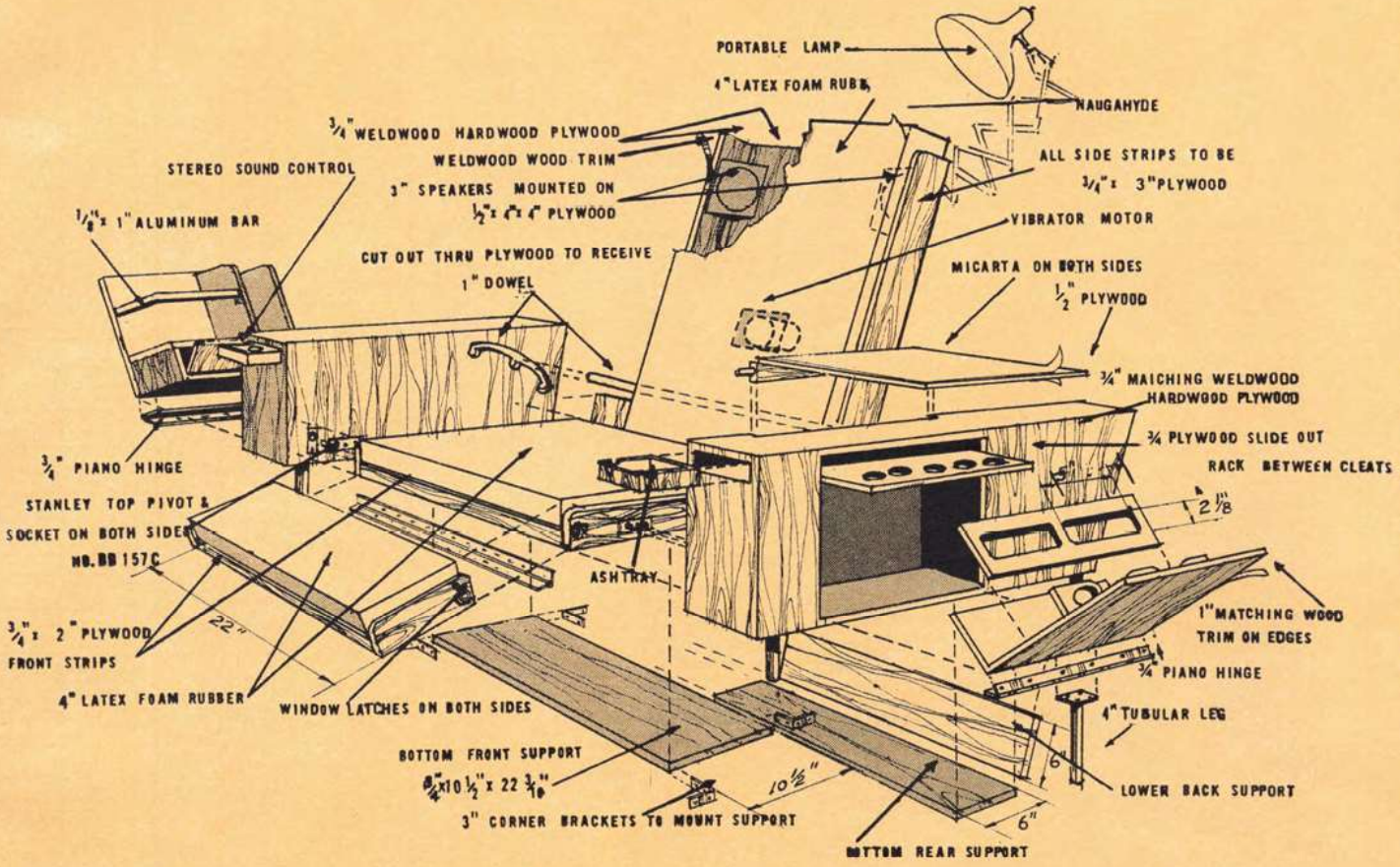
■ I got to griping the other day about the fact that everybody in the house seemed to have a private chair but the old man. Sure, there's an ancient easy chair that's nominally mine—when I can pry baby, Grandma, the teener, the chief cook and dishwasher (I take care of the bottles myself), and the dog out of it and into their respective seats. Finally I simply got tired of chasing the animals in order to find a spot for me. Lads, look at the result and dream. While I was building it I thought of wiring it *à la* Sing Sing, but in the end I just announced that anyone except me who sat in it wouldn't sit anywhere for a month. Around our house nobody argues with a statement of this kind from Pop, the Absolute Ruler.

So far, the throne for the Absolute Ruler has an awful lot of solid living comfort already built in—liquor cabinet, pipe rack, reading rack, slipper slot, slide-out ashtray, a stereo speaker system with slide-out volume control, a slide-out tray, and a back vibrator. I said "so far." Listen to what I have in mind: a swing-out hot plate with a tiny snack bar for crackers, cheese, instant, and a small pitcher of water; a loudspeaker mounted at the back, with a handy microphone, to get me attention a block off if I don't get immediate response when I want it; possibly a wall-type telephone extension set; a rack for cards and poker chips; a swinging gate that can be locked—and thus make sure the chair stays mine; steerable castors and a powered wheel run by a starter motor and battery, to propel me around the room when I feel a little lazier than usual; and maybe best of all, a system of Christmas-tree mood lights, controlled by a set of switches—red light means I'll tear apart anyone who even squeaks around me; yellow light, you can talk, but be careful; green light, I'm a sweet amiable lecherous old man and come sit in my lap, dearie. A built-in reading and sun-or-heat lamp is indicated on the plans. And this, my friends, is just the start; that chair may turn into a whole establishment before I'm done.

Begin by laying out a full-size pattern on heavy paper of the side-arm plan of the chair. Basically this is the same for both arms. Make similar full-scale patterns of seat, back, and footrest sides. Cut the latter three patterns out, lay them on the arm pattern, and try them out in their various positions as shown. When you are sure they will operate freely, with adequate clearance for the footrest locks and for the hinged seat-and-back joint when in lowest position, punch through the forward pivot point on the seat, so that it registers as well on the arm pattern. Although the punched point should be at the pattern point shown, this method insures a smoothly operating adjustment. With the seat side swinging at the punched point, and the bottom edge of the back always lined up with the rear edge of the seat, mark the arc of the back adjustment slot in the arm pattern. It should be on a radius of 18″ from the point indicated in the plan. The straight-line sector of the arc, from the center of the lowest notch to the top one, is 10″, but can be varied to suit. Scribe [*Continued on page* 75]



With feet up and back down, a TRUE *man is set to enjoy his heart's desires.*



It's a Royal Throne indeed—but crisp and modern in looks, the focal point of any room.

long leap the king!

BY PHILIP WYLIE

PHOTOGRAPHED FOR TRUE BY GEORGE X. SAND

MIAMI, FLA.

■ Go back in imagination to a winter many years ago when, on doctor's orders to rest, I first beheld the fronded flatlands of southern Florida. The sun kept shining, the Caribbean clouds kept sailing by and the grapefruit behind my rented house kept ripening to sweet-tart perfection. I decided this was for me, even before I beheld the Gulf Stream, and a new, local friend invited me to go sailfishing. What I caught—not a sailfish—so excited me that the course of my life was changed for the better.

Since the age of 8, I had indulged a passion for fishing in runs, creeks, rivers, ponds and lakes. As a youth I had learned to make my own split-bamboo fly rods (not very well) and tie my own flies (ditto); yet I occasionally took a brookie or rainbow on that gear and with other tackle caught a few good bass, some pickerel, perch, pike and a couple of muskies.

One of the last was actually quite big—maybe 20 pounds. But it towed me in my canoe so far from a northwoods camp, as darkness fell, that in desperation I finally tried to shoot this rampaging muskie with a .22 rifle. And did. Not sporting—but it was the biggest fish tug I'd ever felt and I shot the muskie I couldn't bring to boat not only because I feared getting lost for a night but because my friends in camp were meat hungry.

Now I fared forth in one of those stubby charter boats with bean-pole outriggers and wicker chairs that did most of Florida's charter fishing 30 years ago. The sailfish baits—longer than lots of trout I'd caught—at once astonished me. For the baits sea fishermen use are always one of the first shocks to the fresh-water man. Another is shock over the gear. In those days it was thought that for sailfishing a man needed a reel about the size of a coffee can, a rod strong enough for lacrosse, and at least a 60-pound-test line.

On this first day the chance of getting such a fish seemed so unreal I hardly considered it. Instead, I was concerned with the possibility of getting seasick, and worriedly took the heavy tackle handed to me by the mate. I was to fish straight back while the mate and my host took charge of the outrigger lines.

The sun was high and the radiant dark blue of the Gulf Stream slowly beguiled me. I began also to watch birds: low gulls, a high man-o'-war, passing pelicans. Soon I took off my shirt. Next, my undershirt. And then—!

No warning. No blur behind the bait. No bass or trout stealthily spotted and cast to. No explosion on the surface. Just suddenly a hell of a strike!

I have subsequently watched hundreds of adept inland anglers get their first hit from a sea-going fish: 'cuda, bonito, dolphin, wahoo, many more. And though these are not regarded as giants, every old bass and trout man does what I did. Automatically he snaps the rod up to try to set the hook. But the rod doesn't come up. The thing he has snagged has bent it so hard that when he tries his hook-setting snap, he merely runs more line off his reel.

The salt-water novice finds himself presently embar-

Every now and then a
kingfish uncorks a leap that
leaves its beholders open-mouthed.
But that's not all there is to
fishing's liveliest mackerel

long leap the king!

rassed by another problem—there is such unbelievable pressure on the rod that he lowers it against his will and finds himself in danger of letting it touch the gunwale. Let this happen and *bang!* the tip breaks.

In my own case, through the daze of mere hanging on as line whistled off the reel, I eventually began to hear the mate.

"King," he said laconically.

That meant nothing.

"Keep your rod up!" he commanded. Mine wasn't quite on the gunwale.

"Don't bother to wind now," he continued.

"Wind" was a new word to me and I repeated it questioningly.

"I mean crank the reel! *Don't.* You see—line's still running out against the drag. If you wind, you won't get line in, you'll waste a lot of strength."

That gave me a slightly clearer idea of things. "When *do* I—?"

"When the doggone king stops running! Then you begin to horse him."

"Horse?"

"Pump. I'll show you how when he—Okay! *Wind!*"

I wound and I sweated and I panted. The fish came in a ways . . . and changed its mind. The mate had to remind me not to crank again. And soon he showed me how to raise the rod tip slowly but strongly, pulling the unwilling but briefly less-resistant fish a little nearer; and then how to drop the rod tip two or three feet, rapidly winding in the small amount of comparatively slack line gained.

"What's a 'king'?" I was able to ask that with five minutes gone and the fish still far away and down at some incredible depth. I was beginning to get the shakes. That too is classical for the deep-sea beginner. He will receive such a start from his first fair-sized fish and he will remain in a state of such stress as the battle commences that emotion itself will take more out of him than physical effort.

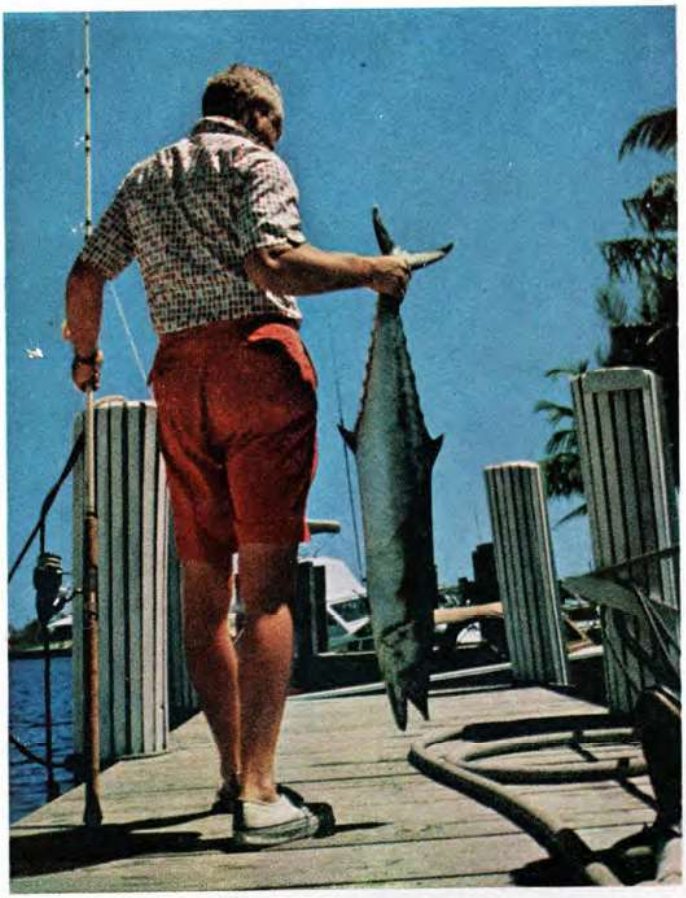
"Look astern and off to port, Phil. You can see him now," my host remarked.

I thought I'd hung at least a 200-pounder. The kingfish, 20 yards out and 20 feet down, showed bluish and silvery but not enormous (fish do look smaller than they are when seen deep). Even so, I knew I had hold of the biggest thing in fins I'd ever hooked.

The spectacle of my fish on my line, slashing and racing down there, caused excitement to burn up most of my last endurance.

When I thought the spots before my eyes betokened collapse, the mate said, "Hold it right there!" And a second later, "Stop winding! The swivel's out of water—you can't pull a swivel through the guides."

Then he leaned beyond me holding a gaff with a longer handle and a bigger hook than any I'd seen. He seized my wire leader with a gloved hand, made a



Angler hefts 25-pound kingfish, a streamlined member of mackerel family that exceeds 100 pounds though rod record is 81.

Jousting with a king, Florida's unsung light-tackle prize.

sort of curving swing and dip with the gaff, and heaved.

Aboard came what he called, "Just a king." But he did add, grudgingly, "Decent one, though. Should go twenty-five or thirty."

A magnificent fish—steel blue above, opalescent white below. A fish built like a torpedo. One with teeth like can-opener points. A fish with an indigo dorsal and smaller spined purple fins behind, like little keels, top and bottom. The biggest I'd ever seen alive outside aquariums. Mine.

My friend and I caught that day nine more kingfish from 15 to 31 pounds. Something like 175 pounds of fish altogether. I thought of other catches as we finally hooked up and ran for home—catches in creels. Of bluegills and bullheads and that one big—but gun-shot—muskie. The four kingfish I had caught this day shaded any previous fishing I had known or even dreamed of.

Just what *is* a kingfish? In the North it is a name for the northern whiting, and for other species in India and Australia. The kingfish I refer to is a member of the mackerel family and is most properly called king mackerel. It is a fish of large schools found in the tropical western Atlantic and Pacific oceans. U.S. anglers know it best along the Gulf states, on both shores of Florida and on up to the Carolinas. In summertime it travels as far north as Cape Cod.

For some reason, kings have had little publicity. Recent books by Joe Brooks, Erl Roman, Chisie and Kip Farrington either barely mention the fish or ignore it completely. It can't be because they're small—who could call a fish of 30 or 40 pounds small? The 20-pound-line record, caught off Bimini in the Bahamas on May 12, 1957, weighed 77 pounds. Commercial fishermen occasionally catch king mackerel as large as 100 pounds. Perhaps they're not considered glamorous, the way sailfish and bonefish are.

This is odd, for in one way a kingfish can outdo anything else that swims. For his size, *he can leap higher.*

When he's hooked the king rarely leaps at all, seldom even breaks water with more than a racing ripple as he drifts a curve just below the surface. But every once in a while for each deep-sea angler, perhaps a dozen times in his fishing life, a king will be seen to leap for a bait in a way that's magnificent.

I've twice been standing on a cruiser's canopy, my head a good 12 feet above the sea surface, when a kingfish leaped for a trolled balao. They can do that in two fashions: they grab the bait coming up and carry it high into the air, lifting leader and line clear of the sea; or they make their leap from behind a bait and land on it coming down.

I've seen it both ways from the position noted and both times I had to look *up* to follow the fish! I won't swear a 20-pound kingfish can lift itself, a bait, leader and a wet line 20 feet toward heaven. I won't state on oath that he'll go that high, unencumbered. But I will vow he can leap either way more than 15 feet.

To see a bait flickering along behind an outrigger, or fluttering from a line trolled straight back—with everything calm, sunny, normal and maybe the fishing very slow—and then without prior event to see a fish shoot into the sky like that is to witness one of the handsomest shows any wild creature can put on. And there's another thing about that show.

Nearly all fish often miss a bait at which they rush, leap, slash at, or rise to swat. But some of the most reliable guides have told me they never—even once—have seen a kingfish miss. Whether they grab it coming out, or whether they aim before they emerge and hit it on the way down when they're controlled by that submarine aid, *they are invariably on target!*

To get such height, a king starts from far behind and deep below the bait. (The men who produce high-jump exhibits by trained porpoises have found what observant old tarpon anglers have long known—an aerial leap is the product of carefully built-up inertia.) Porpoises can leap higher if the pool has been dug out deeply under their target. Even then, like tarpon in comparatively shallow water, they'll get going full speed ahead before shooting down to gain a little extra acceleration from gravity. After that they start up still at full throttle with every ounce of inertia they can collect on that vector.

Perhaps tarpon and porpoises even get an additional thrust from whamming the bottom with their tails as they pull out of their momentum-gaining power dive; sometimes the mud whorls behind them suggest as much. But kingfish can hardly do that. They hit baits often in spots where the bottom is too far down. If tarpon or porpoises could jump relatively as high they'd become sputniks.

Why—it's time to ask—does such a fish have almost no reputation? Why do the master anglers and leading piscatorial narrators skip the kingfish? He is a beautifully built, handsome-hued creature. He sometimes leaps like nothing else with fins. His characteristic battle against the angler is a series of hard, gallant runs punctuated by savage head shakes. Even gaffed, he fights on, often throwing a bucket of brine on board before he can be yanked clear. And—just for an added virtue—this big mackerel is delicious to eat! What more could you want?

Nothing, I say.

I think the reason kings don't have their deserved reputation is because of the way most are caught.

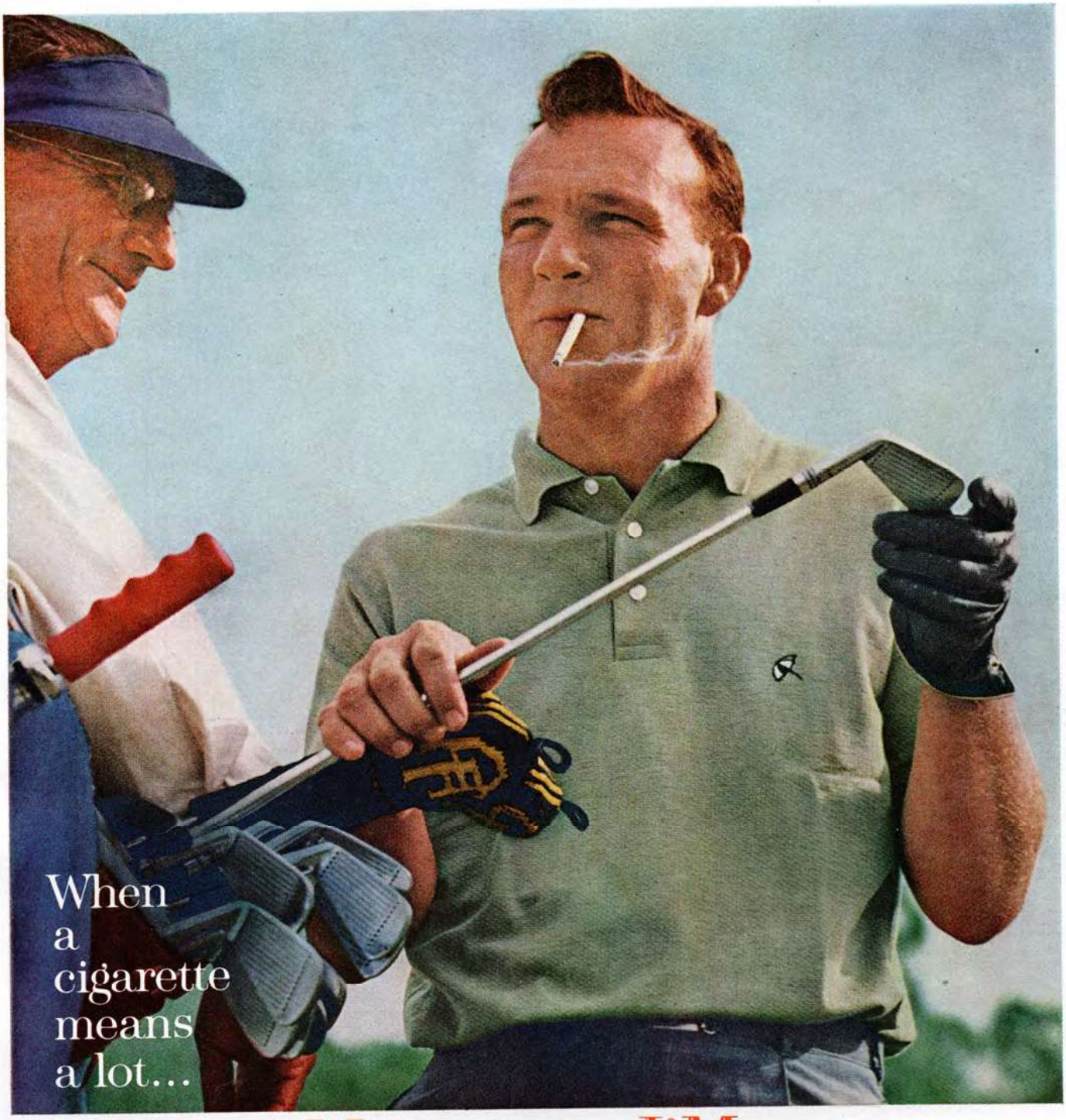
For Gulf Stream anglers rarely take kingfish on tackle of the appropriate gage. Their kingfish strikes occur as fairly common but almost-accidental events, on tackle intended for sailfish or white marlin. That means they are also trolling on or near the surface. Kingfish most readily take a deeper-trolled bait. So, though some anglers may witness the rare, spectacular leap, they consider him an easily-taken fish.

Some anglers do sometimes troll deep for kingfish, but they then use heavy sinkers or, even more commonly, wire line. Either of those items precludes any real experience of the king's powers. He cannot fight line and sinker effectively; and a wire line is simply a device to kill fish that hit deep down.

Since kingfish frequently appear in great schools—and remain in one area for days or weeks—charter boats in great numbers congregate over the schools, particularly on those days when other fishing is slow. Then, using sinkers, wire line, or both, they can make very large catches. There is a good reason for taking kingfish even on a wire or a lead-weighted line. Struggling against being hauled from the painted depths of the Gulf Stream or green water, a glittering king mackerel attracts attention and may therefore increase the chances of attracting and catching other, bigger game fish.

It has been my experience, however, that of all hooked fish (save perhaps tuna and blue marlin in Bahama waters) the king most often attracts sharks and 'cudas. Per fish caught, I've had more kings mutilated than any other one species. Of course, perhaps you can hook the 'cuda (on suitably light tackle) or the shark (on something heavy) after you've lost part of your kingfish.

But it's my further personal feel- [*Continued on page* 68]



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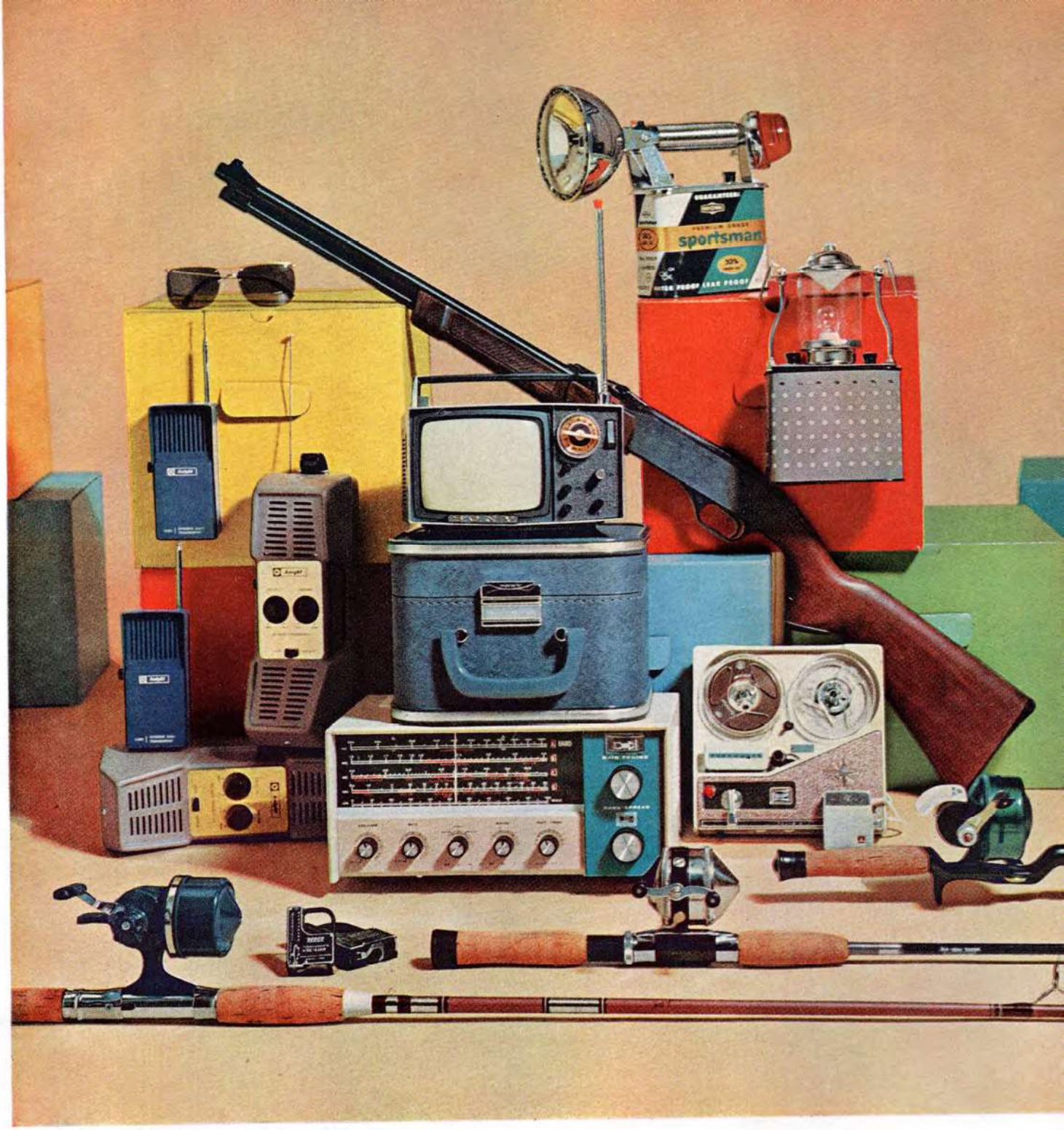
fishing made fabulous

New, streamlined look in equipment for today's well-geared fisherman begins, clockwise from upper left, with a Wright & McGill four-piece spinning rod in sturdy aluminum case; about $27. Colorful storage drawers from Fiesta. Scandia Reel and six-foot pro weight rod, top right, by James Heddon; rod $18.95, reel $29.95. Middle is Bronson rod, reel and line combination; $32.95. Ted Williams rod; $22.50, spin-casting reel; $18.50. Continuing clockwise, open-face spinning reel by Roddymatic; $16.95. Mitchell 300 spinning reel by Garcia; $32.95. Hand-warmer by Jon-e; $3.95. La Salle waterproof watch; $12.95. Windproof Butane lighter by Bentley; $6.50. Floating fly line by Scientific Anglers; $12. Metal fly box by Perrine; $3.75. "Aerofloat" dry fly line by B. F. Gladding; $11. Abu "Auto Spin" 505 reel by Garcia; $32.95. American Thermos vacuum bottle; $3.35. Heavy-duty Aristocrat jug by Coleman; $5.98. Umco tackle box; $25.98. Shakespeare's Dual Drag Wondercast reel; $24.95. Automatic fly reel by Perrine; $10.95. "Bar-Buoy" drink holder by Aladdin; $2.95. Polaroid Sunglasses; $4.98.



Photographed for TRUE by Bob de Zanger

More on fishing in the modern manner, seen left to right from top, features Cool-Ray Polaroid rimless sunglasses; $2.98. Winchester slide action rifle, Model 270, is fast handling and completely modern in design; chambered for shorts, longs and long rifle, interchangeably; $52.95. Ray-O-Vac "Sportsman" lantern has seal beam with red flasher emergency light; $12.95. Radar-Lamp by Burgess has separate head and battery design which eliminates corrosion; $9.25. "The Knight-Kit" 1 watt walkie-talkie by Allied Radio; this is a completely transistorized portable two-way radio; $60. Sony Micro transistorized TV has 5-inch screen; comes also with earphones for private listening; with case; $229.95. Panasonic transistorized portable tape recorder by Matsushita; $129.95. Four band short wave receiver, Heathkit model GR-91, by Daystrom; $39.95. Johnson Sabra reel at far right; $19.95. "Professional" spinning rod from True Temper, in foreground; $40. Fisherman's De-Liar, precision-made combination scale and tape measure by Zebco; $2 & $2.50. Rod & reel combination center, by Zebco; $25.90.

latest products provide a new angle on angling

Produced by RON BUTLER

new look in boots, boxes, baits and bailers

A convenient way for the man of the house to keep his fishing gear together and out of the little woman's grasp is the Fiesta Stor-a-Way Cabinet; complete with removable drawers; $10.95. Other items for eager angling, left to right from top, are Horrocks—Ibbotson "1900" Defiance spinning and spin-casting reel; $24.95. Lures by Fred Arbogast, L&S Bait Company, and James Heddon. Crimping and cutting tool by Acme Tackle Company cuts all type of leader material; $5.95. On drawer at right is a Zebco budget-priced open-face reel with exclusive self-centering bail; $12.95. DuPont's new fluorescent monofilament fishing line, "Stren," is available in test from 2 pounds at $1.25 per spool to 30 pounds at $4.35 per spool; package shown is the 25-pound test; $7.90. Red Ball Sport Boot, left, is the "Ozark." $23. Top is the Brookluck, also by Red Ball; $21. Boot in foreground is the Pecos pull-on-boot by Red Wing; $20.95. Ray-O-Vac "Sportsman" boat bailer is dry battery powered; $24.95. "Titan" Marine air horns by Hadley; complete as shown; $12.95.

Collector's Item

(New middleweight wagon that handles a full size load)

Wagon fanciers have made a great discovery: this new Fairlane wagon carries a load like the big wagons, yet is 8 inches trimmer in length, 8 inches slimmer in width (it slips through traffic almost like a compact!)

Other distinguishing features of these trim new middleweights are a remarkably smooth ride, Ford's exclusive twice-a-year (or 6000 miles) maintenance and lively V-8* (including the Challenger 260) or thrifty Six power.

Surprisingly, the Fairlanes are priced *below* some wagons with *less* load space... right down with some *compact* station wagons, in fact! Whether you choose the handsome Squire, above, or a beautiful Ranch Wagon, you'll find Fairlane Station Wagons ideal for collecting kids, cargo or compliments! See your Ford Dealer... America's Station Wagon Specialist. *Optional

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Long Leap the King

[*Continued from page 62*]

ing that nothing is more distressful than a mutilated fish. The angler is helpless against the marauder unless he catches him, and the hooked fish is utterly without resource. I'd rather have a dozen get away by throwing the hook, breaking my line or other means.

Once, after a terrific scrap, I brought to boat a tuna (one of the kingfish's emperor-size relatives) which proved to be the largest ever taken aboard Harold Schmidt's *Neptune.* We knew that because the previous heaviest tuna had been pulled aboard through the stern transom on its side. To get this one in that way, however, was impossible. We had to stand it on edge, and all hands but one were used to keep it that way while that one heaved on the block and tackle. Since Harold had brought in many tunas on their sides that ran over 600 pounds, mine might have then been a world record (had I been eligible for world records, which IGFA officials are not)—*except for one trifle.*

As mate John Smedburg grabbed the leader, a little mako shark not a yard long hit my tuna and bit a teacup-sized hunk from its shoulder, disqualifying it.

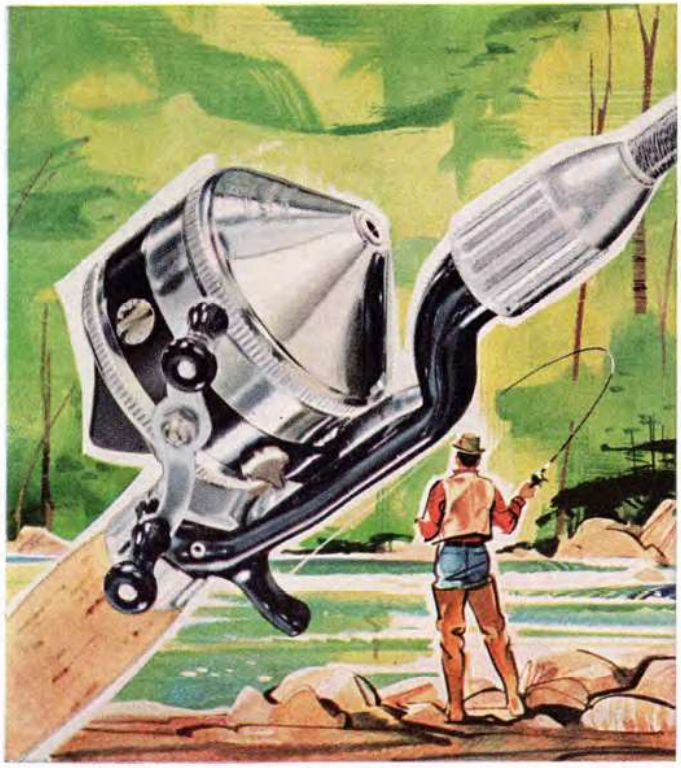
I was sure my own Rod and Reel Club of Miami Beach would have accepted the fish—I *can* hold club records—but such is the passion and folly of big-game anglers that I would not even let Harold take the tuna ashore to weigh it. That small mangled spot, occurring after the fish was fair-caught, filled me with bitterness. Harold was shedding tears when he dropped the dead titan back in the sea.

Kingfish have frequently produced another kind of excitement which has nothing to do with sport. In the earlier days of charter-boat fishing it was assumed that the catch belonged to the angler—any part he wanted, or all. Hence an angling party that hit a school of kingfish and loaded the boat earned a reward of sorts. Docking, on a cool winter night with a thousand spectators on the pier, such anglers might swiftly sell 100 or so fresh kingfish right there at 10¢ a pound.

Nowadays, boatmen are likely to assert that the day's catch belongs to the *boat*—less a reasonable amount of dressed meat and any specimens desired for mounting (which will bring the boatmen a nice commission from the taxidermist). Not a few anglers, having paid present prices of up to $75 for a day's fishing, take a sometimes violent view of the matter. The answer, of course, is for anglers to keep only the fish they need.

One skipper I know used the big-haul gambit when he found he'd taken out a passenger who admitted, shortly after lunch, that he didn't have the price of the day's charter to his name. You cannot profitably make a man wash dishes on a boat. The skipper, however, met the crisis.

He had noticed his passenger had a nice gold watch in trousers left below when the fellow changed to shorts. The skipper first covertly secured the watch.



ZEBCO 33 is world's largest selling reel, known the world over as the finest of its type. Feathertouch push-button control, Naval bronze gears, automatic drag. **$19.50 RETAIL**

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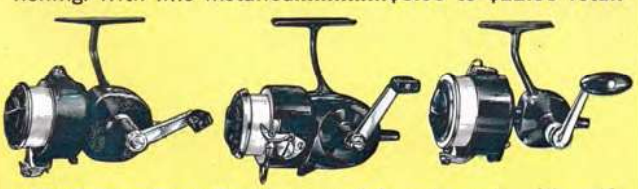

ZEBCO Open-Face Reels are world's only reels with self-centering bail. Fresh or salt water models, complete with line installed.....**$12.95 to $34.95 retail**

There is a companion Zebflex FasTaper Rod, each with a Magnum butt and Carboloy tip, specifically designed for perfect balance with every Zebco Reel.

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Then, observing a huddle of boats to northward, he headed that way. Soon his dishonest client was working on kingfish like a Trojan. When they got in, the watch was back in its rightful pocket, and the kings paid $6 more than the price of the charter.

Some days—and even for some weeks—no amount of boats will diminish the constant, ravenous feeding of the kings.

The fact that they are commercially fished—and frequently amidst men engaged in sports fishing—also causes part of the neglect of kings as gamesters. Most game fish are too game (and scarce) for commercial men. Not these! A fisheries report shows that more than 5 million pounds of kingfish were taken off the Atlantic and Gulf Coasts for the market in a recent year. They're worth catching for anybody's table.

Broiled, with butter, after a light sprinkling of lime juice, and served with *more* butter, melted—the kingfish has very few superiors for flavor and texture. Personal taste counts here. I put kings next after dolphin, tuna, snapper and Spanish mackerel. That may sound like a poor fifth place. But in view of the fact that I've probably tried 80 or 90 sorts of cooked fishes—and liked scores very much—it means kings stand high with me.

I mentioned earlier that most kings are caught on the wrong tackle in that it is far too heavy. What's right? I've found that rugged fresh-water gear such as one would use for muskies or salmon and steelhead is ideal. So are the light spinning outfits and fly rods intended for ocean use.

Never will I forget a brilliant morning in the Bahamas when I set out to explore a stretch of the west-coast waters off Andros Island with a 5-ounce, 9-foot Fiberglas fly rod. It is characteristic of most of the Bahamian Islands that there will be a sharp drop-off to blue—and hence deep—water not far from shore. Some places you hit blue water only 100 yards from shore. I was in such a spot, trolling just inside the blue water.

Now, trolling with a fly rod doesn't sound like much sport. But I wanted to fish a spoon big enough to attract worthwhile fish like barracuda and kingfish. Such a spoon was too heavy to cast. So I'd attached it to a yard or so of piano-wire leader, payed out fly line and went putting down the shore, the spoon twinkling astern and beyond the outboard's wash.

Right here I have a confession to make. Trolling with a spinning outfit, or casting with one, would have made more sense than what I was doing. But this day I had a hankering for the kind of chattering racket that only an old-fashioned fly reel makes.

I hoped I'd hang a kingfish. The setting looked right. Though these fish are often caught in the Gulf Stream quite some distance from shore, they also come into bays. A favorite haunt for them in the Gulf of Mexico is in big bays at what is called the "tide line," where incoming Gulf water, sparkling clear, meets off-color bay water. The demarcation line will be so distinct that it's no trick to follow the curving line and fish it.

In a sense, fishing at the edge of blue water at Andros, I was following a tide line.

Suddenly I got a smashing strike. What had been a lifeless rod a moment ago was now an exciting, straining extension of my arm. The reel gave a high-pitched scream like an air-raid siren in full blast.

Hot damn! I thought as I killed the outboard motor.

In seconds my 90-foot fly line had fled down the guides, pulling after it the lighter, thinner "backing" line of which there was some 200 yards for just such an occasion as this. How many times in my youth had I played a big bass on just such tackle and prayed that it would have the strength to take out some backing . . . and been disappointed.

The fish, whatever it was, being only lightly reined by the gentle click of the fly reel, paused to assess this hard thing in its mouth that wouldn't let go. No doubt the fish tried to eject the spoon, for a sort of quiver transmitted itself through line and rod to me.

A cigarette would taste good, I thought. I was reaching for the pack with my free hand when the fish jolted into high gear again. Now it was making a curving run back and broadside to me, so that by reeling hard I was able to regain perhaps 30 yards. Then the line came tight against the fish again. Instantly the reel spool blurred.

I looked quickly at the howling reel to see if it might not actually be smoking.

After this second run came to a halt, I began to reel in slowly. You cannot make much speed with a single-action fly reel and it may have been that the fish was unaware that it was being drawn to the boat. I pictured it out there, resting and panting—fish do pant by working their gills hard to increase oxygen intake—and still not sure what had happened.

Anyhow, soon I was able to get the fish close enough so I could see a glittery form. Gently I reeled him toward me. *A king, bless him!* Just then the fish saw the boat and dived.

Straight down he went, so forcefully the rod tip was pulled under the water. In moments he was well into the backing again. Spray from the sirening reel beaded on my shirt front. The rod bucked as the kingfish slowed but fought to gain a few fathoms' more depth.

Now he was some 150 yards straight below me, down where the sea fans grow (and cut lines), down where the blue-dark Atlantic eddies in cathedral gloom and thereby, for all I know, is comforting to a fish in peril.

My kingfish came grudgingly from these depths. By the time I had him up top again I felt as if I'd been winding for hours. My reeling fingers were numb and the muscles of the forearm that had held the rod against the plunge ached for relief.

It was not long in coming now. That dive had tipped the scales; I was now playing and controlling the fish, a four-footer that I guessed would weigh about 20 pounds. When at last I could draw the kingfish alongside the skiff, I pulled on a cotton work glove and thus protected from those sharp teeth, I grabbed the lure under water and twisted it free.

For a minute or so, after I'd tossed the rod aside, I held the fish upright in the water while it regained some of its spent strength. Presently I let it swim away, wonderingly, I suppose. But free.

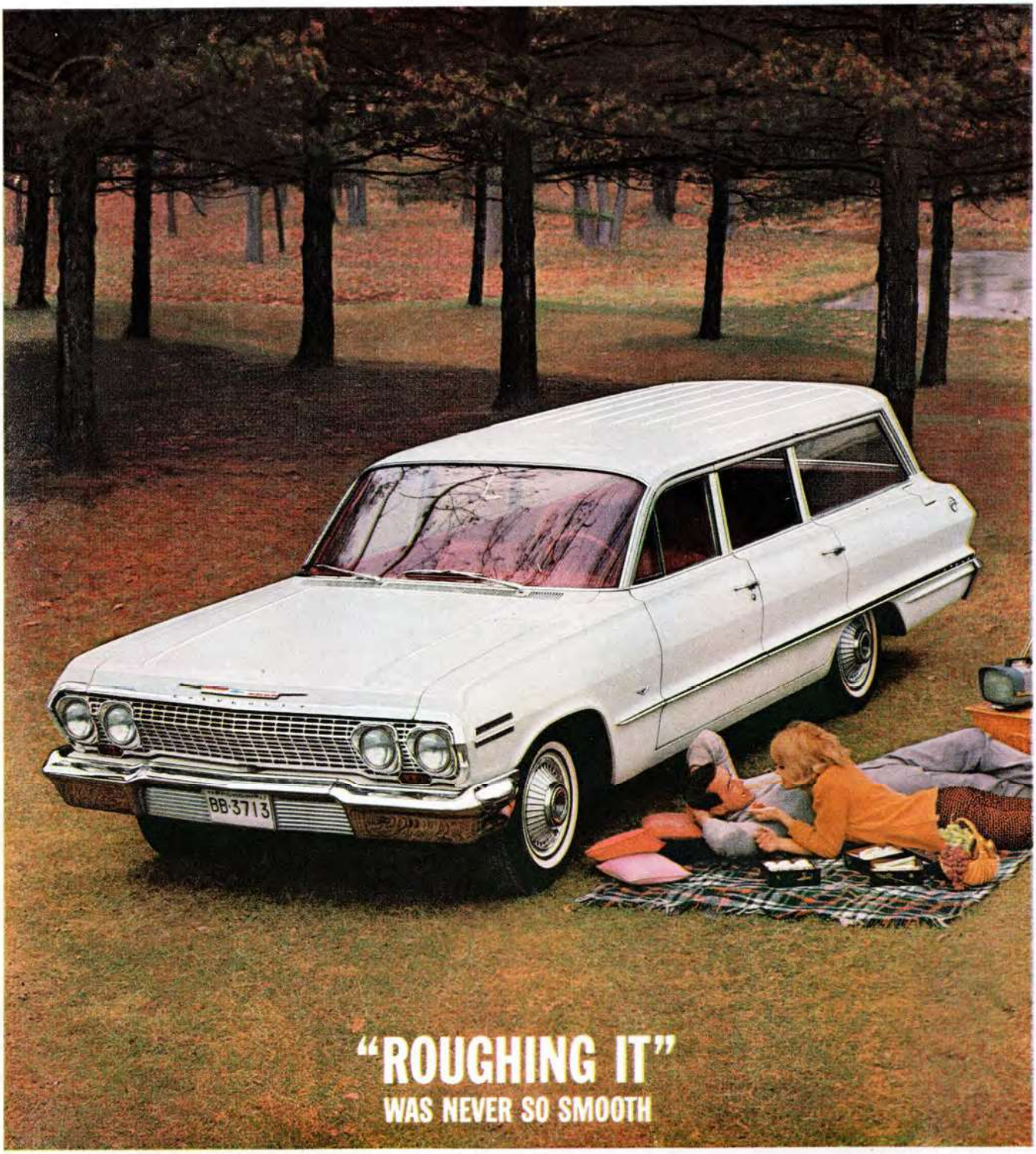
I caught some others that morning. Couple of yellowtail snappers which I kept for the table. A 'cuda which acquitted itself well. The morning, however, was made by that admirable kingfish and I for one would like to salute the breed.

Let's crown the king, I say. It's time he became known as king of the mackerel.

—Philip Wylie

TRUE

"Be gentle and considerate with my daughter, son—and if that doesn't work, belt her one!"



"ROUGHING IT" WAS NEVER SO SMOOTH

Chevrolet Impala Station Wagon

You couldn't find a better wagon than a Chevrolet for carrying everything from rifles, reels and sleeping bags to a gang of broad shoulders. It's got load space enough for a hibernating grizzly, with a tailgate opening nearly 5 feet wide and just 23 easy-loading inches above ground. On the other hand, a big Chevrolet wagon is just the ticket for family rambles on Sunday or goofing off on a day off. There's plenty of passenger room in its luxurious Body by Fisher that's cradled on four husky coil springs to take the bounce out of rough going when you leave freeways and your cares behind. And this wagon is built to *stay* a sound investment with its self-adjusting brakes, Delcotron generator to save your battery, built-in washing and ventilating system to help protect rocker panels against rust, and a more fully aluminized exhaust system. There are five Jet-smooth '63 Chevrolet wagons to fit your needs, whether they be hunting or hauling. Ask your Chevrolet dealer how they'll fit your budget, too!... Chevrolet Division of General Motors, Detroit 2, Mich.

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Strange but TRUE

by George R. Martin

The biggest wolf hunt ever held took place 200 years ago in the center of civilized France. Some 20,000 men with several thousand dogs joined in the largest hunting party in history. Paradoxically, their quarry was only one wolf among the many that harried French flocks, but it was the most savage ever known. The Beast of Gévaundun apparently had acquired a perverse taste for people instead of sheep. Ranging a mountainous area of some 50 square miles, in little more than a year it had killed 82 human victims, chiefly women and children, and had so terrorized the region that trade and travel came to a standstill. Spurred by a reward equivalent to $30,000 offered by King Louis XV, the great hunting party assembled from 125 towns and took the field March 7-10, 1765. Their efforts proved futile, for the killer escaped the horde of hunters to resume its attacks. The king dispatched his personal gunbearer, Monsieur Antoine, with dogs from noblemen's kennels and a company of royal guards. On September 20, Antoine brought the wolf to bay. He fired at it with a blunderbuss packed with five charges of powder, 35 buckshot and a bore-sized ball. The animal fell—and so did Antoine, knocked down by the kick of his weapon. But he was justly a hero to all France, and the king received the world's worst wolf as a present, stuffed and mounted and harmless at last. *By Rene Lavoison, Bethesda, Md.*

Air-mail paper was a stock item in the Arabian paper trade 1,000 years before the first airplane ever left the ground. Around the year 900, Arabs had so developed the art of paper making, which they had learned from the Chinese, that Baghdad manufacturers sold a range of standard sizes and thicknesses. Included was a fine-quality paper made extra-thin for messages to be sent by air—via the Arabs' pigeon post.

The United States has fought 54 wars or military campaigns—39 against Indians, 15 foreign—but possibly unique in history is one little-known American struggle that remained bloodless. Nobody got hurt in the Aroostook War. This clash with Britain over the boundary between Maine and the Canadian province of New Brunswick had an unmilitary start. In 1838, New Brunswick set up a camp of lumberjacks in the long-disputed wilderness area. Maine sent in a sheriff and 200-man posse to stop the assault on Maine trees. These lumberjacks surrendered, but reinforcements captured some possemen and hustled them off by sleigh; the sheriff with his prisoners hastily retreated. Maine and New Brunswick called out their militia, and in February 1839, 10,000 "Mainiacs" marched north 200 miles through snow and mud to dig in along the Aroostook River. Washington meanwhile had got into the act; Congress voted $10 million to mobilize 50,000 men. Luckily, a cooler head prevailed. Gen. Winfield Scott of the U.S. Army, sent to negotiate, pledged the governor of Maine and the lieutenant-governor of New Brunswick to hold their fire, exchange prisoners and occupy the territory jointly while a boundary commission went to work. Its decision fixing the international line—Maine had to give ground—formed a treaty signed by the U.S. and Britain in 1843. Thus ended the Aroostook War, which has been termed "one of the greatest conflicts never fought." *By Lee Gorman, New York.*

Funeral trolley cars coursed through city streets, carrying caskets and mourners, for some 35 years during America's trolley age. As a means of combatting the high cost of dying, rapid-transit trips to the grave made sense at the time. When electric street railways began operating in the 1880's, new cemeteries were opening in city outskirts. A horse-drawn funeral procession of many hired carriages was slow and expensive, and the trolley companies wanted business. The first funeral car took the track in Atchison, Kansas, in 1889. Its basic design patterned others across the nation. A typical funeral car looked much like an ordinary car, made somber by a dark-green color—though some were all-white. A forward compartment held the casket, side-loaded through a swing-down panel, on a low platform between longitudinal seats for the family. The rear compartment accommodated 25 to 30 mourners in conventional trolley seats. Complete with neatly uniformed motorman and conductor, and bearing a destination sign "Special," the car rented, before World War I, for $25 to $35, depending on distance. But a trolley funeral—screeching around curves, rumbling across intersections—lacked funereal quality. The last was seen in Chicago in the 1920's. Pittsburgh tried out a 30-passenger funeral motor bus; it proved too expensive to replace the obsolete but economical trolley car. *By Thomas A. Cullen, Terre Haute, Ind.*

Hair on the face is admired by only about half the people of the world—that half belonging to races whose males can grow beards. The other half, whose males can't, consider facial hair shameful. The two points of view can take extreme forms. In Anglo-Saxon times, breaking a man's thigh brought a fine of 12 shillings whereas cutting off his beard cost 20. On the other hand, in Paraguay today, beardless Indians pluck any stray chin hairs and go on to pull out their eyebrows and eyelashes, saying that they do not wish to resemble horses.

For acceptable Strange But True paragraphs, accurately and briefly written, TRUE will pay $25 each on publication. Readers must state their sources of information when sending contributions. None can be returned. Address George R. Martin, TRUE, 67 West 44th Street, New York 36, N. Y.

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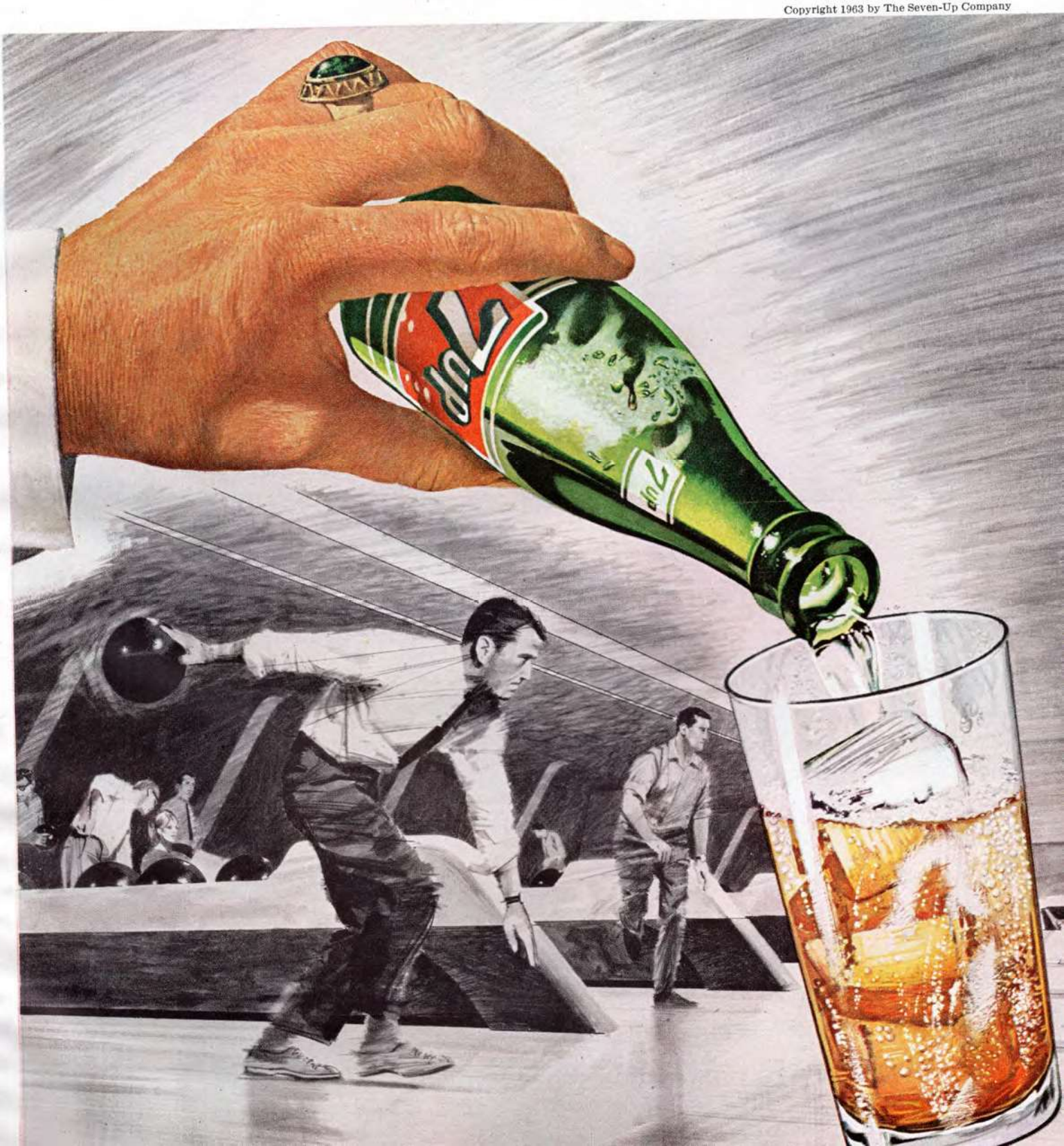

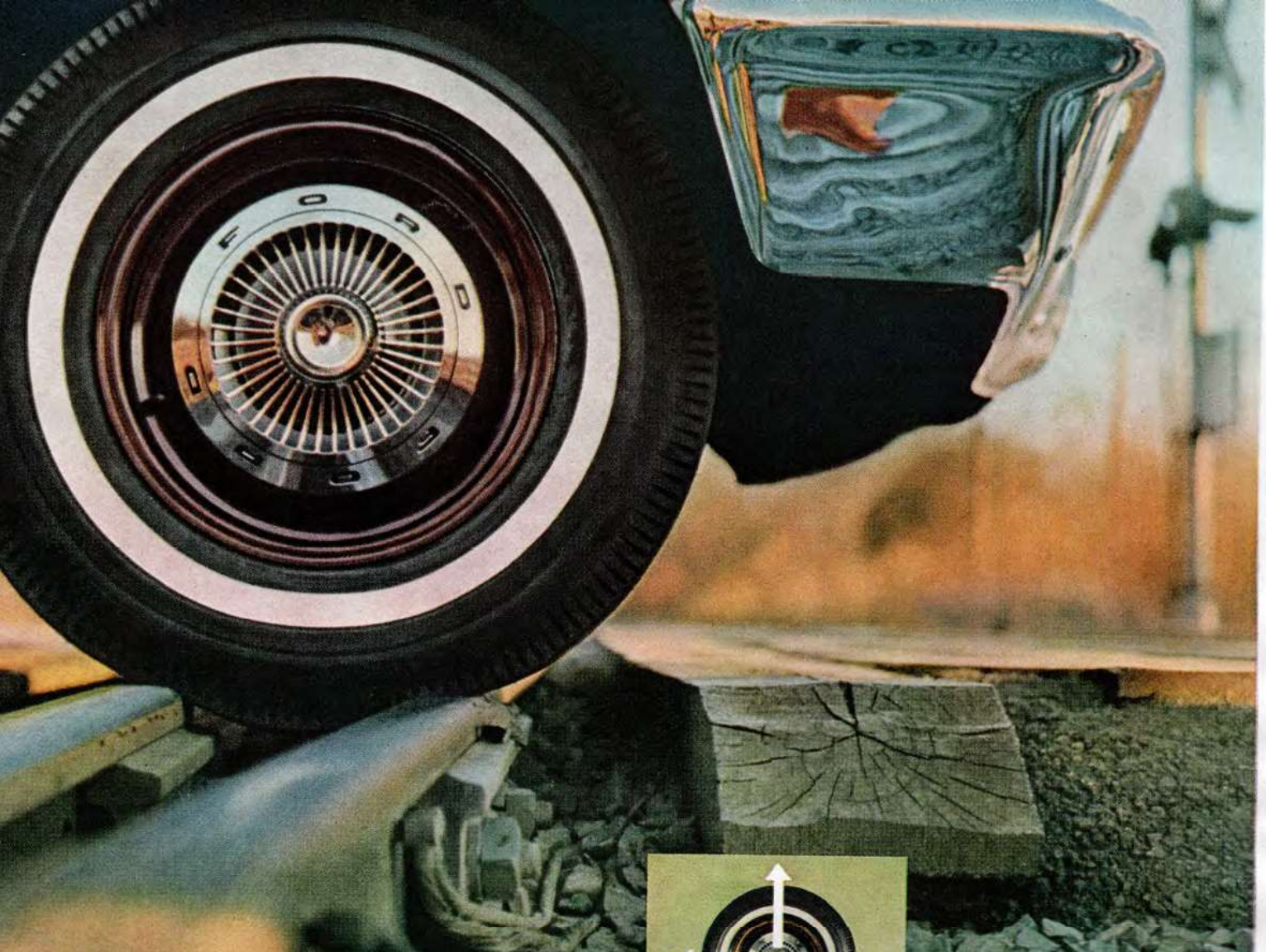

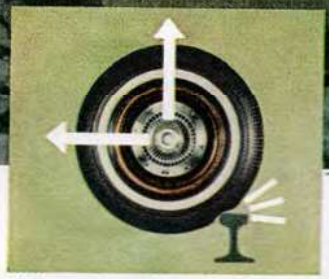

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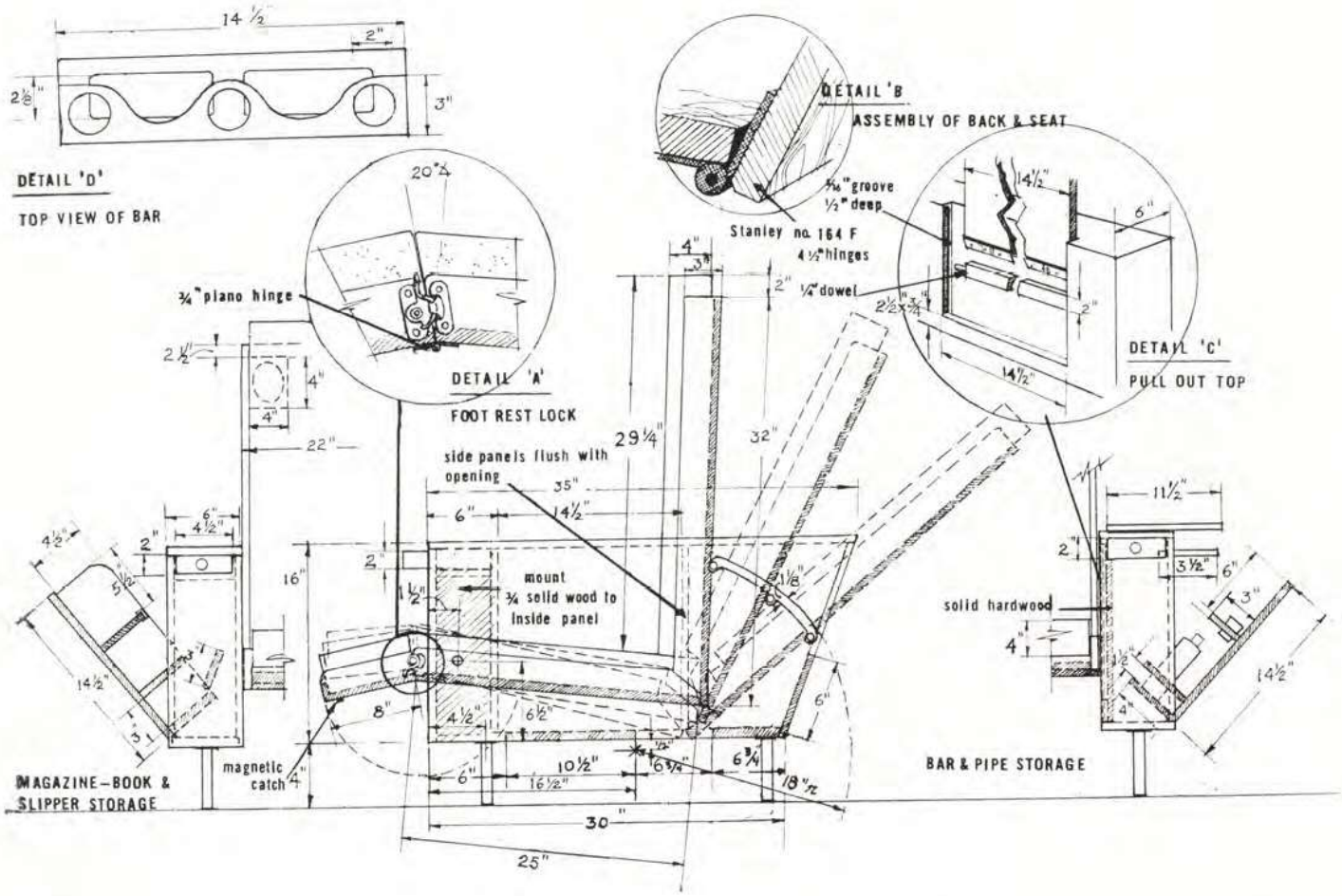


A Throne for the Absolute Ruler

[*Continued from page* 56]

a second arc 1⅛" below the first one, and on an arc ½" below that, prick the centers for the three position notches. The lowest notch center should be 1 5/16" in from the rear edge of the side piece.

Okay, start cutting. I used Weldwood teak, by the way, but the choice of plywood is up to you. The front, back, and bottom pieces—4½" wide—and the top pieces—6"—of the arms come first. The tops are wider and longer because they overlap the sides. They—and the bottoms—must be angled at the back edge to fit the rake of the arms. The top for the left arm has a notch on its inside edge 14½" long and ¾" wide to allow operation of the slide-out tray, as shown in Detail C. Start this cut 6" from the front edge. Each arm front consists of two pieces cut together. The upper piece, only 2" long, makes the front of the slide for stereo control or ashtray; the lower piece is 13¼" long. Next cut as follows the side pieces of the arms. The piece for the inside right arm, overlapping front, back, and bottom, is unbroken. Because the two outside arm pieces are sectioned, make them ¼" longer than the plans specify, to insure good joints. Then, working from the front, cut from these two pieces 6" and 14½" wide sections. From the bottoms of the two 14½" pieces slice ¾" wide strips. Set aside the two larger panels. For the inside of the left arm cut a piece 6"x15¼" to adjoin the front of the arm, then a piece 2½" deep and another 2" deep, both 14½" wide and with matching grain, and a last piece to fill out the rear portion of the side. Of the latter pieces, take the 6" one and the rear angled one, and cut in each, along the inside edge facing the other, a centered groove 5/16" wide and ½" deep.

Make temporary assemblies of the arms, tacking together tops, bottoms, fronts, backs, the inside of the right arm, and the 6" outside pieces of both arms. Along the outside bottom of each arm tack in its ¾" strip. Then lay each rear outside piece on its assembly, tight against the ¾" strip, and square, mark, and trim to fit. Tack in place.

Tack in also the inside 6" piece of the left arm, and along the bottom edge adjoining it the 2½" piece. As above, mark and trim the remaining rear inside piece, but don't tack in yet. With this lying in place, trim the 2" piece of this group to an easy sliding fit between front and rear sections, as in Detail C. Then in each end bore a ¼" hole centered ⅞" below the top edge. Fit in, unglued, dowels to project ⅜". Cut a piece of half-inch plywood 11½" by the exact width of the 2" piece, allowing for the thickness of Micarta on the two side edges. This will be the arm tray. Join, again temporarily, the tray to the doweled piece with piano hinge. Slide the assembly in place on the arm, and tack in the rear section. Try the tray, with loose Micarta strips at the sides, for easy operation. Mark the end flush with the top (the end will be covered with thin wood trim), and cut to size. Cover both front and back surfaces of the tray with Micarta, to prevent warping, as well as the side edges.

Now align the arm pattern over the inside of each arm, and mark the back adjustment arc and notches, and also the seat pivot points toward the front. Bore the notches with a 1⅛" drill, and cut the arcs with a saber saw. Sand the slots smooth and break all sharp edges with sandpaper.

At this point, fasten in permanently, with glue and screws, a ¾"x4"x12½" solid hardwood reinforcing block to the inside front of each side. Each block must be flush at top with the small slide opening at front, since it will support the slide. The blocks also help support the seat.

Trim the two outside 14½" panels for an easy fit as hopper doors, and attach them temporarily on piano hinges. Then take them off and fit them out as shown in the side-view plans and Detail D. The light magnetic catch is used to hold the slipper-box door shut.

Reassemble the arms with glue and 1¼" No. 8 flathead wood screws. I concealed the heads by sinking first for each screw a half-inch hole 5/16" deep, then boring a 3/16" pilot hole through its center. After the screws were run in, I filled the holes with matching long-grain

"Where's your suggestion box?"

plugs I made with a plug-cutter. These were trimmed and sanded flush.

On the inside panel of each arm, at the seat pivot point, mount the female half of each pivot-and-socket set with 1¼" screws. Place these halves vertically, and recess them flush with the panels.

Cut the two bottom and one lower back supports of the chair, all 22 3/16" long. The rear bottom piece should be angled on its after edge to butt neatly against the back piece, to which it is fixed with glue and screws. Join the two arms of the chair with these pieces, using the 3" corner brackets and ¾" screws. One arm must be detached later.

Now make footrest, seat, and back. All these are bascially panels of plywood—footrest 6½"x20½"; the seat 20½"x 24¼"; the back 20½"x32". Cut the ¾"x3" side pieces according to the patterns for them—8" long for the footrest; 25" for the seat; 31¼" for the back. Mark the pivot points on the seat sides. Note that the abutting ends of back and seat sides are cut at a 45° angle, and the front ends of the seat sides (but not the footrest sides) at a 20° angle, as in Detail A, to permit proper operation of the full assembly. There are also ¾"x2" pieces for front and back of footrest and front of seat. Assemble each section singly, with end and side pieces going outside each panel and flush with bottom.

Secure the male half of each pivot-and-socket set to its side of the seat, centered horizontally. Do not recess these halves. Hinge back and seat together, as in Detail B, with a pair of 4½" hinges set in 2" from each side. Fasten the footrest to the front of the seat with piano hinge. These parts must be held snugly together when screwing on the hinge. Attach the window locks which I found to be the best method of holding the footrest rigid. To the lower back edge of the footrest mount one half of a heavy-duty magnetic catch, and attach the other half to the bottom half of the seat panel, shimming out as needed to give full gripping power.

Unfasten one arm of the chair, set the seat assembly into the pivots, and refasten the arm. (You may want to take it off again for the finishing.) Cut a 1" hardwood dowel 24" long, and work a light flat on it to 1" from each end. Round off the ends. Slip one end of the dowel into one of the adjustment slots in the arms, then slide the other end into the opposite slot. Lower the dowel into a notch and let the back rest against the flat. Prop up the seat-back joint enough to clear the bottom supports. With the dowel centered, run four 1½" No. 12 roundhead brass wood screws through the dowel into the back.

Make the stereo control and ashtray slides to fit the space available and the equipment you have. The fronts of these, of course, are the 2"x4½" pieces already cut. When you are ready to install the slides permanently, a screw run into the bottom of each from inside the arm will serve as a stop for pulling out. For a pushing-in stop, line up each front, then with a brad and glue attach a small block to the underside of the arm top.

Reattach the side arm doors on their piano hinges. I used touch latches to hold them shut—but you can always attach locks to keep itchy fingers out. And a length of brass chain on each limits the opening.

Mount the twin speakers into the corners of the back 2½" from the top, using ½" plywood baffles to hold them. The wires can be led down inside the back and through into the arm by a small hole bored near the seat-back joint. A small loop of wire must be left at that joint to allow flexibility when the chair is adjusted. Obviously the major stereo equipment must be located elsewhere, but a single wire and jack pipes the soundjuice in.

Not everyone is going to want the back vibrator, but it's easy to add on. Basically it consists of a half-inch plywood panel set inside the back on rubber washers or bumpers. The panel must clear the back sides to allow for motion. To the center of the back, outside, attach the vibrator motor, with its eccentric shaft running through a hole bored in the back to a fitting fastened to the floating panel. The switch for the vibrator can be put on the stereo slide.

Mount the legs to the chair arm bottoms. The front ones are centered 4½" from the front; the rear ones should go back as far as possible.

Cover all exposed edges with contact cement and matching wood trim. Finish the chair by rubbing on three coats of boiled linseed oil, sanding lightly between coats, and one coat of paste wax.

I'm not going to recommend that you make the cushions yourself. An upholsterer will probably do a far better job. Give him the width and length of the three cushions, bearing in mind that the back cushion will project 2" above the back panel. Ask for 4" foam slabs, since there is no give to the seat and back panels. I had my cushions covered with Naugahyde. Tell the man you want the cushions to fit snugly, so they'll stay put. To keep them in place, however, you'll also need a little special work. The footrest cushion will fall out when it's folded back unless it is fastened. A good way to do that is to have the cushion made with 3" wide welts fore and aft along its top. Set the cushion in its rest, and run three or four ¾" semi-roundhead brass screws with washers through each welt into the top edge. Because the back cushion will tend to slip down unless it is fitted around the speakers (which should be done anyway, for neatness), it's a good idea to attach a 1½" aluminum angle strip across the lower edge of the back.

Going on from there? How about a bottom warmer—an electric heating pad set into the seat cushion (with a zipper in the cushion welt so it can be removed). Man, this can become the greatest project since you got married! **—Bill Baker**

MATERIALS LIST

- 2 sheets ¾"x4'x8' Weldwood hardwood plywood
- 120' matching Weldwood wood trim
- 1 panel ½"x2'x4' plywood
- 1 piece 18"x24" Micarta
- 1 length (36") 1" hardwood dowel
- 1 piece solid hardwood 1"x4"x30"
- 7' piano hinge 1½" (open)
- 1 pair Stanley No. 164 F 4½" hinges
- 2 window locks
- 2 sets Stanley No. BB157C Top Pivots and Sockets
- 1 length strip aluminum ⅛"x1"x3'
- 1 length angle aluminum 1½"x1½"x3'
- 8 corner braces 3"x3"
- 2 touch latches
- 1 magnetic catch
- 1 heavy-duty magnetic catch
- 3' light brass chain
- 4 square or tubular legs 4" high
- ¾" No. 8 flathead wood screws
- 1¼" No. 8 flathead wood screws
- 1½" No. 12 brass roundhead wood screws
- 1 quart Weldwood contact cement
- 1 pint Presto-Set white glue
- No. ½, 2/0, 4/0 sandpaper, matching putty, fine steel wool
- Satinlac, or boiled linseed oil and paste wax, as desired, for finishing

He Turned Barnyard Into Box Office

[*Continued from page 55*]

high up under the roof at one end of the rope, the chicken emerges, and makes her way cautiously along the rope, teetering and balancing with half open wings and a deep frown of concentration upon her brow. When she reaches the platform at the far end of the rope, she does a quick turn-around, and returns at slightly better speed than on her trip out. She slips inside her house for refreshments, but in a minute or so she is back out teetering over space again.

"And just think," Keller Breland observes philosophically, "at this time of day, millions of old hens in barnyards everywhere are out scratching, thinking, about finding a nest and laying an egg."

In fact, one of his performing hens *did* lay an egg one day, in her pants, right in the middle of the show. Her role was "Sticky Fingers Joe," a reincarnation of an old-time gambler in "The Bewitched Village," a miniature western ghost town in California, where the former human residents supposedly were changed into animals. Other characters include a barfly rabbit, a bunny that spins the wheel of fortune and a pig that works a gold mine.

Sticky Fingers Joe, the aforementioned hen, wearing a suit of clothes, flies from a window in the "Ghost Town Hotel." From a deck of cards she picks a poker hand higher than can be chosen by a human from the audience. On the day she ad-libbed the egg, the hen had flown out a minute late. The egg, which had caused the delay, slid out of her pants leg while its creator was in mid-air, scoring a near-miss on the M. C. (human).

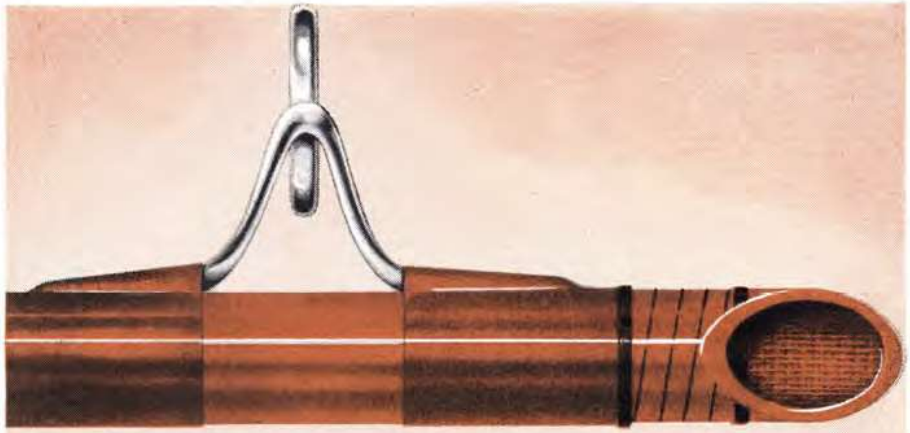
In case anyone is interested in how a chicken is able to pick a higher poker hand than a human, this game is rigged. The cards are marked. Keller Breland—for it was his diabolical brain that conceived these shenanigans—knew all along that chickens, like most fowls, have keen vision for detecting minute details.

The marked backs of cards are more easily seen by a sharp-eyed chicken than by a human, who has not had a chicken's practice searching for small bugs in the clover. The hen gets a reward for picking the backs of cards marked to represent aces and face-cards. If she picks lower than 10's, she is likely to be sent back to the barnyard. It's the stewpot for a hen that picks treys and deuces.

Occasionally, an evil gleam emits from the ordinarily honest eyes of Keller Breland when he meditates upon the vast potentialities of chickens that can pick higher cards than humans.

"We have never explored fully this angle of our endeavors," he remarked the other day. "But it has interesting possibilities if times ever get hard."

So far, times have been good. Animal Behavior Enterprises has an annual gross of perhaps $500,000, but with its staff of 14 and laboratories to maintain, expenses run high. "We have made a lot of



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IT HAPPENED IN SPORTS

by Jimmy Breslin

NIGHTTIME FLEECING FOR A FANCY FOURSOME

The late Lou Clayton loved many things in life, one of which was not sunlight. To Clayton, of the team of Clayton, Jackson and Durante, daytime was for attending a funeral or reshaping the future of a bank loan. Otherwise, Lou, if awake, was cross-eyed until cocktail time. At which point he unfailingly came alive. This was something that the others in his golf foursome discovered during a match in the fall of 1930 at the Belleclaire Club in Bayside, Long Island. The other members were Titanic Thompson, Frank Costello and Big Bill Duffy.

Belleclaire was not a famous golf club but it was a high stakes course. Anybody off his golf game could lose a pants factory on the back nine there.

Which was exactly what disturbed Clayton as this great foursome played along on this afternoon. Clayton was having an awful time. He was keeping his head down, all right. After the night he had put in at his Club Durant, he couldn't even raise it. On the other hand, his companions were in fine shape. Duffy had been up early, arranging a fraudulent match or two for his fighter, Primo Carnera, and also attending to his bootlegging empire. Costello, clear-eyed, had been busy all day, doing whatever it is he always has done for a living. And Thompson, who had discovered a couple of suckers during breakfast, felt great. The three of them were murdering Clayton. On the 10th, for example, it took Lou four to reach the green, three more to get down and $3,500 to square his losses for the match thus far.

But help was coming. By the time Lou teed off on 15, long shadows criss-crossed the course. He was able to take a deep breath or two now. "I may live," he announced. He broke even on the hole. By the 17th, dusk was coming fast. So was Clayton. "Give me a cigarette," he said. "I think I'm through coughing for today." He won two side bets on the hole.

The 18th, a short par 3, was almost completely dark. Clayton was humming. He birdied the hole and it left him only $2,500 behind. "Let's play another round," he suggested. Everybody laughed. You couldn't see anything now. "Then we'll stay right here and play for $1,000 a shot," Lou suggested.

The price was too good to turn down. The others went back to the tee and Clayton arranged for the club doorman to park four cars around the green and turn on the headlights. A caddy would measure shots. Whoever came closest to the hole with his tee shot would win a pot of $1,000.

Now Clayton was only a Class B player. But Lou had everything going for him. It was nighttime and he was jumping. And the 18th green, bathed in headlights, reminded him of a cafe dance floor.

Lou had that $2,500 debt wiped off in a half hour. After an hour, he was $1,500 ahead and getting better by the shot. It was one of the great comebacks in golf history, and when the match broke up, Lou said he would give everybody a chance at him the next day.

"Fine," Titanic said. "What time should we look for you?"

"Nine o'clock at night," Clayton said. "And it's fine with me if you come a little late. I'll hit a few while I'm waiting."

money," Keller says, "but we have put most of it back into research, and development. We have done well enough financially that we've discounted every bill we ever had by paying it promptly."

The Brelands became interested in animal behavior during World War II. As graduate students in psychology at the University of Minnesota, they assisted Dr. B. F. Skinner in his "crackpot idea" of using the homing instincts of pigeons to guide bombs down the very chimneys of enemy factories and to score direct hits on warships.

Dr. Skinner, who has since become professor of psychology at Harvard University and is also noted as the inventor of the much-publicized "teaching machine," knew that during World War I, the British had used sea gulls as lookouts for German submarines in the English Channel. The British would run their own submarines in the Channel, releasing food underwater to the surface. From the air, the gulls could see the underwater shadows of these food sources. They learned to follow all submarines, German as well as British. Thus, wheeling flocks of gulls out to sea were regarded as significant warnings by watchers on the British coast.

During World War II, the Russians trained dogs, carrying loads of TNT, to blow up enemy tanks. A Swedish proposal to use seals for the same purpose against submarines was never successful. The Russians, however, are said to have successfully trained sea lions to cut mine cables underwater.

Attached to each sea lion was a Rube Goldberg apparatus, including a motor-driven cable-cutter, a tank-full of small fish and a device that released a few fish at a time into a muzzle that surrounded the sea lion's head. After he was released into the sea carrying all this equipment, the sea lion had to find a cable before he could eat. He would swim alongside the cable, which triggered the cable-cutter. As that began to cut, it tripped another mechanism that released some fish into the sea lion's muzzle. After the power supply for the cutter was exhausted and the fish all gone, the sea lion was given an automatic signal to return for reloading.

Professor Skinner and his assistant, Keller Breland, built a small pilot house, containing a pigeon pilot, to be installed in an air-to-ground missile. A camera in the missile's nose would transmit a picture of the industrial scene, or naval flotilla below, onto a translucent plastic screen in the pilot house. The plate had a semi-conducting surface, and the end of the pigeon's beak was covered with a gold electrode. Each of several dozen pigeons was taught that he would get a grain or two of hemp seed (pigeons regard hemp seed as especially delectable) if he would direct the vehicle carrying him to a certain factory smokestack, or to a designated type of ship. The ships were cutouts, and the industrial scenes were reconnaissance photographs, projected upon a movie screen in the perspective of a bombardier 20,000 feet up.

The pigeon guided the missile by pecking on the translucent screen the projected image of his personal target. The peckings set up a series of electrical im-

pulses that caused the missile's steering mechanism to adjust accordingly, and direct the load of explosives to its target as unerringly as a pigeon finds its loft.

"Project Pigeon" was never used against an enemy. The missiles to carry the pigeons were not perfected in time. But when the war was over, the U.S. Navy continued the idea as "Project Orcon" (organic control). The Navy found that a pigeon would peck an average of four pecks per second, within a quarter of an inch area. This was sufficient to steer accurately a missile going at 600 mph. When electronic guiding devices became sufficiently perfected that they could outdo pigeons, the Navy "reluctantly retired" its pigeon pilots in 1953.

By then, Keller Breland and his wife had been six years in the business of training animals commercially along the same general lines used to instruct the pigeons. These principles of animal psychology had been established more than half a century earlier by the Russian scientist, Ivan Pavlov, who noted that the salivary glands of animals became active when the dinner bell rang. This showed that the animals made a mental connection between the dinner call and the food, as people do. Since Pavlov, his disciples have had mainly clinical interest in animal behavior in these realms. They have confined their operations to the laboratory and their results to figures on charts and graphs.

The other school of animal behaviorists have been the red-coated animal trainers. They have used the whip, the chair, the blank-firing pistol, tossed bits of food, words of praise and their own overpowering personalities to teach animals to entertain people.

The twain had never met until Keller Breland and his wife entered the animal training business. They use something called "animal behavior engineering," a discovery of Dr. Skinner, their mentor at Minnesota. His system, a modernization of Pavlovian principles, rewards an animal instantly for any step it makes in the general direction of a successful conclusion of a performance.

In this science, a reward for proper behavior is called a "reinforcement," because each time something reinforces any particular activity of an animal, the chances improve steadily that the animal will repeat this activity. To be effective, however, the reinforcement must be given almost simultaneously with the desired behavior. A delay of only a few seconds can spoil its effect. Incidentally, the reason you may not be able to break your dog from chasing cars is probably that you punish him when he returns from his dash. This gives the dog the impression that he is being swatted for coming when you call. He should be punished when the idea enters his head, and he makes his first move toward the car. But, of course, that is difficult.

A reward of food, given in the usual way, is not fast enough either to be effective as a training device. Therefore, the Skinner system includes a "conditioned reinforcement," or "bridging signal," generally a distinctive noise that can be given instantly. This informs the animal that

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it has made a correct move, and it will receive a delicious tid-bit very shortly. The sooner the food reward can be given thereafter, the better.

Suppose you wanted to teach your dog to signify hunger by going over and touching the knob of a cupboard door with his nose. The procedure, as advocated by Skinner, would go like this:

Provide yourself with 30 or 40 bits of food, small enough that the whole lot would not satisfy the dog's hunger. Hold between your thumb and forefinger a mechanical "cricket." Toss the dog a few scraps of food, while you sound the cricket. Wait half a minute and repeat. By now, the animal will probably approach you in a begging attitude. Pay that no attention. Do not pet or talk to the dog. Do not reinforce him when he is looking at you or when he is standing near you. Wait until he looks another way.

At first, reinforce any move he makes that could be part of the completed project. Then, reinforce only when he looks, or moves, toward the cupboard. Very soon you will notice that the dog is looking toward the cupboard most of the time. Within a minute or so, the animal should be standing beside the cupboard. Then, pay attention to its head. Any movement that brings the head nearer to the knob should be reinforced instantly. A dog should be able to learn all this in five minutes, even if he is not very smart.

And that, basically, is about the way that Keller Breland and his wife went about training the three chicken acts that, in 1947, they showed to representatives of the Larro Feed Division of General Mills. One hen picked out a four-note tune at the piano. The second "laid" on order any number of wooden eggs, up to eight. The third did a tap dance, in costume and shoes.

These acts, and others added subsequently, became showstoppers along the county fair circuit and at feed company "open houses" for half a dozen years. Sometimes one performing unit was viewed by 5,000 people in one afternoon.

Nowadays, most of the 90 Breland units showing about the country are rented, leased or farmed out on a profit-sharing basis—but never sold—to operators of establishments with a lot of foot traffic. These operators generally write in and designate the sort of act they want, and Animal Behavior Enterprises ships the animals by Railway Express, along with the necessary props and a mimeographed sheet of instructions. About all the lessee has to do is to provide somebody to feed the animals and check on them now and then. The animals are more dependable than most human handlers, or even their mechanical equipment.

The animals are also better fed, and suffer from nothing like the mental distresses, traumas and neuroses that beset their counterparts among human Thespians. Working conditions are considered excellent. A cast of four chickens is sent out with each baseball unit, and the batsmen are changed every two or three hours during the playing day, because of weariness and jaded appetites. The chickens will play steadily, or spasmodically, when a spectator puts a coin in the slot. Another popular concession is a card-vending machine, run by a chicken that pushes a lever, dispensing a postal card when a spectator parts with a coin. This function can be performed all day by a single hen, but a stand-in is always sent along, just in case.

"Something by way of a birth congratulation that won't be binding in court."

A coin-operated animal act can easily bring in $40 to $50 a day. The Brelands' own I. Q. Zoo attracts 500 to 700 viewers, at 75¢ a head, on good-weather weekends in summer. Of all human types, farmers appear to appreciate most the art of the performing fowls and beasts of the barnyard. Farmers have had more opportunity than most people to observe the usual feather-brained behavior of chickens, for instance, in their natural habitat.

It is, therefore, utterly incomprehensible to a farmer when he sees an old Dominecker hen going through an intricate routine of maneuvers that appears to involve, not only organized thought, but considerable concentration.

Animals seem to thrive on the actor's life. They are able to round out fine, full, satisfactory careers. There are several chickens with Animal Behavior Enterprises which have performed steadily for seven years and are still going strong.

Pigs, Keller Breland often says, are the most satisfactory of all the species of animals he has trained. He feels that pigs are the most maligned of all animals; they have had very poor public relations. Most farmers, Breland says, underestimate a pig's intelligence because a pig does not respond well to punishment. When you try to kick a pig around, he just gets stubborn. A mean gleam comes into his eyes, and the bristles rise on his back.

Incidentally, not one of the more than 7,000 animals trained at Animal Behavior Enterprises has ever been punished once. Punishment confuses animals, the management feels; they respond more quickly to rewards. A trainee is rewarded when it responds correctly. When it does not perform properly, it gets no reward.

Pigs respond enthusiastically, both to kindness and to food. Contrary to the popular notion, they have basically clean habits, and they can be house-broken. This latter is difficult with highly I.Q.-rated monkeys, and even with some humans. Furthermore, pigs "generalize" readily, which speaks well for their intelligence. This means that, in its ardor to earn a tidbit, a pig will go beyond its teachings, and perform feats similar to —but not the same as—those that it has learned will result in a reward.

As "Priscilla, The Fastidious Pig," dozens of swine have been trained by Keller and his men to arise from bed, turn on a radio, eat breakfast from plates on a table, run a vacuum cleaner, pick up "soiled clothing" from the floor and put them into a hamper.

Next to pigs in intelligence, Breland rates dogs, cats and raccoons, but he is not especially fond of working with either dogs or cats. The former become so involved emotionally with their trainers that some dogs will work with only that one human. Cats play up to human trainers, too, but they don't really mean it. Cats are two-faced, and not very sincere about anything outside of their personal comforts and stalking their prey. A cat is very sincere about hunting.

A dog will chase a rabbit for half a day just for the hell of it. He has not thought much about what his attitude should be if he happened to catch the silly creature.

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When a cat sets out after his quarry, the cat means business. His intention is to lay it by the heels with the least possible effort, and he knows damn well what he is going to do with the victim after he catches it. To move in any direction except along the shortest line toward the food source makes no sense whatever to a cat.

It is possible to train a feline to advance in other directions, but he does not do this gracefully. It is pretty clear all along where the cat's mind is. When persuaded, against his better judgment, to move indirectly toward the food, the cat goes reluctantly, looking back anxiously over his shoulder, like an aging actor taking a curtain call. This sometimes causes mental trauma, and a neurotic cat is even less attractive than a neurotic human.

Keller Breland prefers to work with porpoises, which have a healthy detachment toward human trainers and a less intense attitude than cats toward food. A porpoise will work hard for a few morsels, but he will not allow thoughts of the reward to dominate his personality and cramp his acting style. Porpoises are very hammy. It is mainly this—and not the creature's vaunted intelligence you hear so much about these days—that has made the porpoises at the Florida and California aquariums such great attractions.

In 1955, Marine Studios in Florida hired Breland and wife to jazz up its porpoise act. After working on them for several years, a German animal trainer had managed to train one porpoise, an individual named "Flippy," to retrieve a dumbbell, jump through a hoop and catch a football. Another porpoise had responded slightly to these conventional methods of training, which involve: addressing the animals in a resonant and commanding voice, fixing them with the old eagle eye, moving about them with stately motions at all times, and, in general, fixing firmly in the animals' minds the trainer's strong and attractive personality.

Breland felt that porpoises, like most animals—excepting certain sentimentalists, like dogs—are most interested in satisfying their own selfish desires, comforts and appetites. They don't really give a damn whether their trainer is a saint or sinner, an extrovert or introvert, a he-man or otherwise.

So, Keller shifted porpoise instruction to an impersonal system of food rewards if they did, no rewards if they didn't. And in next to no time, the whole cast was clowning all over the joint.

These remarkable activities have helped to circulate an impression that porpoises may be smarter than people. The experts at Animal Behavior Enterprises do not believe that porpoises are as intelligent as some authorities seem to think. As animals go, they say, porpoises are pretty smart, but what is regarded as their brilliance is just a well-organized channeling of the porpoise's energies, inspired by the old food drive.

But, now and then, sex exerts itself, and complicates this well-ordered picture. Male porpoises may concentrate upon sex even more intensely than roosters do. Once, during the mating season at Marineland of the Pacific, a porpoise was caught trying to mate with a moray eel. Next day, another porpoise was observed making passes at a sea turtle.

The porpoises persisted in these extracurricular affairs, even though they were being denied their food rewards. This tends to upset certain theories among the "behaviorist" group of psychologists. Even more disquieting is the tendency among some porpoises to eat their stage props. A porpoise choked to death not long ago from trying to eat a rubber ball it had been using in its act, and a small whale recently underwent an operation for removal of a prop inner tube it had swallowed.

Porpoises and whales probably know that rubber balls and inner tubes are not good to eat. However, some of them apparently cannot resist the urge to eat objects which they have handled that intimately. In this, they are reverting to the following principle of sea mammal nature: the main reason for any creature handling an object is that the creature considers the object food, and intends to eat it.

Such a surrender to primitive passions is contrary to the theories of animal behaviorists. They hold that an animal's main interest is in procuring food with the least effort possible. Thus, if the animal is properly rewarded with food, it can be "conditioned" to forget the traditions of its kind. It will adopt any unusual ways of procuring food that its trainer might design, so long as the food comes easier that way.

Although Breland has used this principle to train more than 7,000 animals to shoot cannons and play baseball, many individual animals, in his experience, have failed as performers. In their cases, tradition has been stronger than the desire for food. Take, for example, his unsuccessful efforts to teach raccoons to deposit coins into a child's bank.

The raccoon would pick up the coins all right, but it had trouble turning them loose. The coon would rub the coins together, like a miser counting his gold, scrape them on the sides of the bank, withdraw them, and hold them tightly. Keller concluded that the raccoon was attempting to "wash" the coins, as it would have done with a crayfish or other morsel it had captured, before eating it. So Breland changed the act by having the raccoon shoot baskets with a basketball. The ball was large enough so the little beast did not confuse it with a food item.

One of his most popular acts, "the dancing hen," resulted from the chicken's revolt against certain changes in fundamentals of chicken nature involved in what appeared to be a much simpler type of performance. Originally, Keller had merely wanted to teach a chicken to stand in the bed of a toy truck, simulating a trip to market. But the fool chicken wouldn't stand still. When the truck wheels began to turn, the chicken would shift, stamp and scrape its feet. Knowing that food was coming, the hen was trying to behave the way her kind always has to procure food. She wanted to scratch.

So, Keller removed the chicken from the truck and put her in the dance hall. She was easily taught to turn on the toy jukebox with a switch made to resemble a worm. Then she mounted a platform, and proceeded to scratch. On the dance floor, with the music going, her scratching gives the illusion that the bird is dancing.

Or there is the case of the frustrated pigs, which are taught to pick up large wooden "coins," and deposit them in a piggy bank. "Pigs condition very rapidly," Breland states. "They have ravenous appetites, and are among the most tractable animals that we have worked with. At first, a pig would eagerly pick up one dollar, carry it to the bank, run

back, get another, carry it neatly and rapidly to the bank, and so on.

"Then, over a period of weeks, the behavior became slower and slower. The pig might run eagerly for the dollar, but on the way back, instead of carrying and depositing it simply and cleanly, he would repeatedly drop it, root it, drop it again, root it along the way, pick it up, toss it in the air, drop it, root it some more, and so on and on . . . Finally, the pig went through these motions so slowly that he did not get enough to eat in the course of a day. This problem behavior developed in successive pigs."

Thus, with pigs, whose appetites are legend—as with raccoons, chickens and other animals and fowls—desire to conform with tradition is sometimes greater even than the desire for food, when the creatures are hungry.

"These instances, we feel," Breland has written in *The American Psychologist*, "represent clear and utter failures of the conditioning theory."

The conditioning theory, which has been widely accepted by psychologists in recent years, states that environment has much greater effect upon the behavior of an organism than heredity does.

Perhaps the outstanding example, in Breland's experience, of the failure of training over tradition was the case of a large turkey gobbler, trained at Animal Behavior Enterprises to ascend a scale and weigh itself. The turkey performed this feat perfectly until it was placed on public display at a convention of the Turkey Confederation in St. Louis.

With hundreds of spectators looking on, the gobbler would approach the scale, set a foot upon the weighing platform, and then apparently go all to pieces. Its great wattles would inflame to a purplish hue, and its feathers would distend into an immense strut. It would retreat from the scale, and go staggering about the floor, gobbling, stomping and quivering.

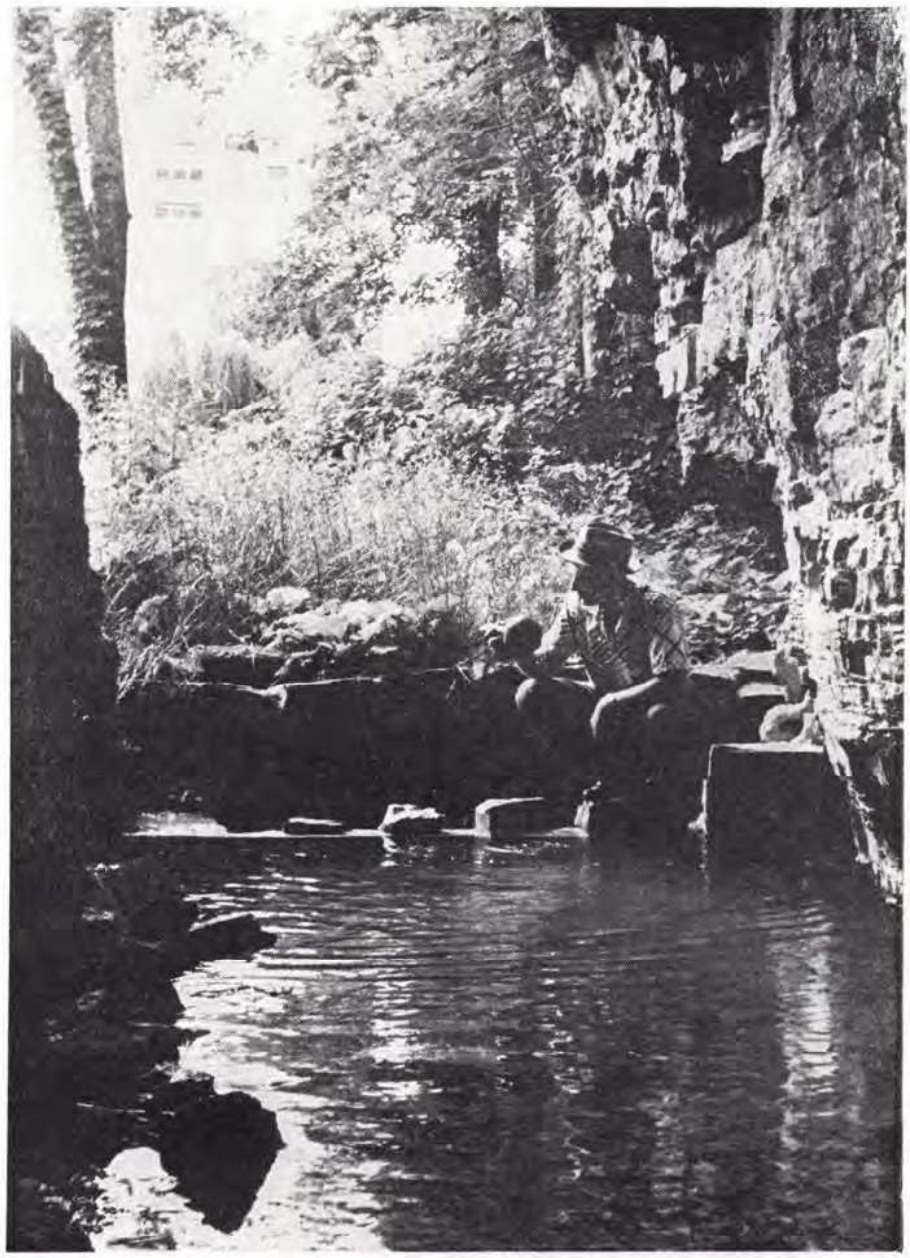
"You old fool," growled Keller Breland from the sidelines, "I'll make you weigh yourself if I have to starve you to death."

But days passed and the turkey refused to weigh himself. Finally, after the convention was over, Keller figured out the trouble. While the gobbler was being trained in one section of the Breland establishment, four young turkey hens were being taught in another section to act as its stand-ins.

Old Tom had never laid eyes on the hens until the entire act was brought together at the convention. The hens emitted sexy noises in his presence, causing the gobbler's glands to gallop. It was able to hold itself together, however, until it approached the scale, and set a foot upon the weighing platform which depressed, in the manner of a turkey hen's back when it is mounted by a gobbler.

This was too much for Old Tom, who went four days without a bite of food, and lost a lot of weight. The gobbler never did get around to weighing itself. Its mind was busy with higher things.

In materialistic times like these, it is heartening to hear even of a low-intelligence creature like a turkey who will go hungry for a principle.—**Rufus Jarman**



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The Wonderful Wallendas and How They Died

[*Continued from page 30*]

standing joke with all of the family.)

The big draw still was the famous human pyramid, the act's climatic spine-tingler created by Karl in 1947. The Wallendas themselves call it "the big trick" or simply "the seven." It is theirs alone, never duplicated: a masterwork of unity, precision and endurance. No one who has seen the fantastic construction can ever forget it: a precarious balance of seven persons three-high on a taut stretch of iron-and-steel cable thick as a man's little finger, 48-and-a-half-feet pedestal-to-pedestal, 36 feet above the ground—and no net beneath; four understanders rigid as guardsmen, spaced along the wire with their shoulders yoked, each pair, by a metal rod about five feet long fitted with double crookends, support a man on each of those two bars, the shoulders of that pair linked by a bar half again as long on which a girl topmounter balances, seated on a squat and cratelike wooden chair, painted white. Uneasy undulations of seven long flexible, silvery poles, pleading for balance, give the display a weird dreamlike character.

Karl loved his marvelous creation. How it held the audience! so breathless, so scared, when the pyramid got to the cable's center and stopped, swaying and tense. And then, at the end, with the pyramid safe across and nosed into the finish platform and standing again so steady while it is carefully taken apart, piece by piece, body by body—*Gott!* that is som'ding! What ecstasy leaning down from the pedestal to that sea of faces, to feel the surging wave of relief and adulation rising around you, to hear the wild roar of applause. What more could a man ask from life?

In Karl's sawdust-&-spangles world all was well that evening in Detroit, except for one small nagging worry. That was his newest protégé, Dieter Schepp, 23, a "Wallenda" many times removed from the simon-pures and near-Wallendas and the only member of the troupe not a hardscrabble circus veteran. Dieter, a nephew of Karl's first wife, got into the act due to Karl's ingrained habit of overlapping altruism with business.

He'd found Dieter in West Berlin, a harassed escapee from the East-zone Vopos. He lived with his widowed mother and sister. Karl, needing a replacement for his daughter Carla who was soon to leave the act, saw potential in the sister, Jana, 16. So, by autumn 1961, the Shepps were settled in the Wallendas' Florida domain—free room and board, and no more Vopos.

Dieter had no passion for the *hochseil;* he resented the boredom and discipline of training. He griped about stiff shoulders, blistered hands, aching thighs and calves, sore feet. Always with one problem solved another took its place. He detested Florida: American beer was flat. Karl felt it couldn't be the money that bugged Dieter; during training he got adequate beginner's pay: $50 a week, plus quarters and meals. (That was $30 more than Jana or any of the girls had gotten and far above the stipend of European circus apprentices—in some cases the equivalent of $1 a week). However, through Karl's extraordinary persuasive power and extreme patience, the balky youngster finally became a credible understander. His sister, meanwhile, had become a matchless topmounter.

"Don't nobody worry about Dieter," Karl counseled his uneasy troupe at rehearsals among the Sarasota pines. "I break him in good. He is muscled-up fine, und fear he has not got. He is no *artist;* I never expect him to be. But when he holds a trick, like a rock he is."

On the road Dieter slept in the four-bunk dormitory built within the act's enormous equipment van, but had to pay for meals out of his weekly wages of $80. This made his take-home less than winter quarters' pay had been. However, Karl permitted Dieter to work as a prophand for the various circuses in which the Wallendas appeared. Thus, he earned from $80 to $100 more per week.

They'd give it a year, Dieter told his mother, save every nickel, then go back to Hamburg. He just didn't like striding through the sky. Jana resented his attitude; she wanted to be a circus girl always. But to Mama Schepp her son's word was law.

Between shows that evening in Detroit Karl paused to watch Dieter at work erecting the wild animal arena, one of the prophands' more arduous jobs. "Strong like an ox," observed Karl, "but maybe for a First-of-May (circus rookie) he is taking on too much." He asked the boss rigger about Dieter.

"Well, he don't kill hisself workin'; he seems to pick the easy jobs. But I like him okay, Karl." He tied off a guy rope. "I notice you got him startin' in 'the seven'."

"*Ja, ja,*" said Karl. "Yesterday, the first time in public. . ."

Back in the dressing room Karl's brother Herman was sleeping off his supper. He was serenely stretched out, his balding head pillowed on a canvas rigging sack.

Herman has the face of a pugnacious angel. He is a man at peace with himself. Herman, who believes strictly in giving God a free hand ("It is He who decide when, where *und* how you go."), has been Karl's lifelong partner. The brothers were the first performers to put a bicycle on the high wire, the first to bring to it a human pyramid.

Karl was the family's original wire walker, although his father was the first

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of the tribe to leave the ground. At age 65 he still was a flying-act catcher. The earliest members of the five-generation Wallenda circus dynasty—founded in Bohemia during the Austro-Hungarian empire—were itinerant acrobats, jugglers and musicians; later Wallendas were wild animal exhibitors. A notable great-aunt trained timber wolves and laughing hyenas; another broke a team of seven sea lions to draw a chariot.

Karl glanced at the headlines of the day's papers; he riffled through the act's mail, removed his few letters, eased down on the other bench.

"*Gott*, am I tired!" he sighed. Catching this damn crazy flu maybe. So many performers knocked-out. He hoped Dieter wouldn't run himself down and get it. "A fine pickle we be in."

Where was Gunther? (Herman's son, 38, the act's mechanical factotum), then he remembered: Gunther and Mario (Karl's adopted son, 29) were working on a rigging repair over in the van parked alongside the elephants' picket line in the vast exhibition hall adjoining the arena. And Dick? Probably still out working props.

Actually, just then Dick Faughnan, one of the four understanders in the pyramid, was in the arena offering to buy Dieter a brew; ever since he'd joined the act the two had been beer-buddies. Dieter said *nein*, and indicated he didn't feel too good.

"Listen," admonished Dick, "it ain't none of my goddam business, but if you think you're gettin' the flu, you oughta tell Karl. You don't never have to work when you're sick; this ain't Comm'inist Germany. Mike McGuire can go in 'the seven.'

Dieter caught four words: flu, Karl, work, seven.

"*Nicht* flu," he said, shaking his long blond head and jabbing his midsection with a fiist. "*Nur ein kleiner* bellyache." Dieter was afraid that if Karl knew he didn't feel well he'd be taken off props and lose out on the money. Dieter turned on his crinkly, squint-eyed smile. "Dis night I go *schlafen* early; *im morgen* be o.k."

Dick, married to Karl's daughter Jenny and close to the family for years, was Irish and resisted German: disliked to speak it, but understood some. "Okay," he said, "*gut*, hit the sack early tonight—maybe in the morning you will feel better."

At the arena exit to backstage Dick encountered Mario and together the two walked down the corridor to the dressing room. There, Mario flipped a casual greeting to his adopted dad, boosted himself onto a wooden cable spool standing alongside the door, wriggled out of his scuffed motorcycle boots and lost himself in a lurid paperback.

Karl was proud of Mario: brash, sunny natured, never afraid—except this time. Before they'd left Sarasota he'd come to Helen and said, "Mama, for the first time I'm afraid." She'd laughed.

"*You* afraid, Mario? You been on the wire since you are a little boy four year old; *you* cannot be afraid."

"I am, Mama. I just don't know why. If Mike was in there on 'the seven' I feel

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better; I just can't warm up to Dieter."

Jenny, too, had suffered qualms about coming to Detroit, but told no one, just went to a neighbor's and cried her eyes out.

Dieter's Mama also had wept—on the night she saw the Wallendas on television. Until then, apparently, she hadn't realized the truth of wire walking, that grave peril follows every step. The television closeups showed the strain in the men's faces, their resolute grips, the concentration in their eyes. An ominous musical score further dramatized the danger.

Tearfully, Lotte implored her son to forget the money; they'd go home right away: this week, tomorrow, today! Dieter just laughed as he and Dick stabbed into two more cans of Karl's beer.

"Don't be afraid for Dieter," Karl comforted Lotte. "For a long time now, *mit* Gunther, he holds 'the revolve'—a much harder trick it is: the boys can get shook off the wire each time the girl spins around the bar. Anyone who can hold 'the revolve' can hold anything."

One by one the male Wallendas had drifted into the dressing room. They dressed casually, adjusting their ballet-type jock supports, combing hair, pulling on costumes for Spec (Spectacular, the walkaround pageant that opened the show). Soon strident screeching of Shrine bagpipers, lead-off unit of the grand parade, filled the backstage corridor.

"There she goes, boys!" exclaimed Karl; all but he and Herman dashed out, helter-skelter, cursing without malice, zipping and hooking on the fly. As the pipers swung into an ear-splitting rendition of *The Minstrel Boy*, Herman squinched open his eyes and unfolded.

"I think I change my profession," he commented, yawning. "A professional sleeper I'm going to be." He began to ease into his high wire costume and Karl dragged on his. The brothers had nothing more worth saying to each other. The Wallendas were the next-to-last act in the show's first half, following a mixed-animal display. During it, Mike, Gunther and the other understanders "set the buckets": the chore of tightening, by ratchet and block-and-tackle, the high wire's four sets of sway guys, steadying cables that run obliquely from it to the ground. Eight dirt-filled buckets, hanging from scissors-like wooden braces, substituted for stakes, which couldn't be driven into the Coliseum's floor.

The bucket-setters had just time enough to drop their smocks and get to the center-ring entrance where Karl, Herman and the Wallenda girls awaited their announcement. Karl counted noses, gave Dieter a searching look.

"*Bist du* all right?"

"*Ja*, sure," replied Dieter glumly.

"*Nicht nervös?*" persisted Karl quietly to Dieter.

"*Nein.*"

"*Him* nervous?" scoffed Gunther. "You should have seen him pack it away at breakfast this morning: two fried eggs and bacon, a side order of French-fries, large tomato juice, a hamburger, a liverwurst sandwich, milkshake; I forget what all else."

Dieter crinkled up a smile.

The animal act finished in a confusion of dog barks, seal roars, bear shuffles, chimpanzee scrambles. The ringmaster's whistle shrilled. The band paused.

With raised silk topper and stentorian voice the ringmaster introduced: "The *Great* WALLENDAS! *Ex*-zee-ecuting *the* Most Fan-*tas*-tic Exhibition of High *Wi-ah* Artistry in the En-*tiah* History of the Circus World!"

Spotlights struck the Wallendas. They pranced into the center ring, greeted the audience briefly, bravely, then doggedly climbed the pedestals to the high wire. The band slid into a husky, brassy waltz. Seven thousand anxious faces tilted upward.

The act started as it had every night since Karl and Herman first put professional foot on the high wire. All the troupe's men, each bearing his long balance pole, minced onto the cable, filling it end to end. They stopped. In unison, at a "Hup!" from Gunther, each raised a knee, let his pole rest on it, released one hand and sent it into a jaunty salute.

Then the act ground into its routine with Karl and Gunther participating in most of the stunts. Dieter's first holding was as understander, with Dick, for a shoulder-bar headstand by Karl; before sending his feet fluttering in space, the boss-man shrewdly appraised the act's newest performer. To give his uncle a breather, Gunther next made an ordinary cross-cable journey by bicycle. Then Karl did his inimitable handstand on Herman's shoulders in mid-wire. The brother-act thriller was okay as usual; it got a good gasp when Karl wiggled a little, and a good hand which he brazenly "milked" into a better one. Now came the ringmaster's announcement of "the seven."

The music became shivery, quieter, so that the balancers could hear each other. Ten people crowded the small starting platform, some forced to lean recklessly over its edge, others perched on its bridge. Dieter stepped onto the wire, a bar yoked to his burly shoulders. He moved out from the platform. Ever so carefully, the pyramid was built up behind him: Dieter, Dick, Mario and Gunther, understanders; Karl and Herman, middle men; Jana, topmounter. Mike stood ready to set on the chair; Jenny, on the other pedestal, would take it off.

Gunther made a damn good tailender. For years his father and uncle Karl had drummed into him their high wire credo of confidence, mutual concern and tempo. All he'd learned, Gunther unselfishly passed on to fledgling Dieter.

"Don't get careless; don't get cocky. We don't want nobody up there who ain't afraid; only a fool's not afraid. I'm scared silly every time I go on, but I always make myself *feel* safe. Don't be tense. Take your time and do only what you know for damn sure you can do. Remember you get out of wire walkin' only what you put into it; to that extent it parallels life."

Gunther shared his father's faith in God, only in a more concrete way. "God is just your own guts," he believed. "God has to be inside of yourself."

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Gunther's great skill is in the art of manipulating a balance pole. "Without it," he'd often explained to the newcomer, "you can't *possibly* stay on the wire, especially with weight on you. *With* the pole, you can always recover, even if it swings straight up. I saw my dad do that once and still stay on. The pole is your goddam life; you hold onto it even if you have to push your fingerprints into it. And don't you *ever* try shifting your pole once you're out on the wire, 'cause you'll get thrown right off. Get that pole balanced in your hands *before* you go on the wire. And remember, with weight on him, even an expert can't get away with shifting his pole."

Gunther didn't worry too much about Dieter. His position in "the seven" at the front is the easiest of the lot, for there a man is concerned only with his own balance and isn't confused by the sway of other poles and movements of teammates. The two middle understanders support the most weight, because the second-level pair rides closer to them than to the front and back man. The rear understander—Gunther—has the most difficult spot. He must tolerate all distractions ahead, and, being last off the platform, momentarily he must endure the heavy forward pull of all six who have gone onto the wire.

The pyramid now was ready to go. Gunther shot another look up at Jana seated on the chair balanced on the top bar. Satisfied that she was secure, he called, "One step!" to tighten slack. Everyone waited expectantly.

From his elevated position Herman announced, "Ready!" In double check, Gunther questioned, *"Ready?"* No answering dissent, so he barked, "GO! *E-e-e-e-esy out."*

Then, after a few steps out on the wire, "All right. *I'm* clear." Now the understanders opened step, moved faster. With delicacy and wary confidence the bizarre ensemble set out on its fearsome journey, moving in beautiful harmony, seven as one, 1,300 pounds trembling in space; their very breathing seemed coordinated. The understanders' elkskin-slippered feet shifted softly in unison, feeling for footing at each stiff rhythmic step. Balance poles creased muscular bellies, and slowly see-sawed slightly like sensitive feelers of some outlandish insect.

All 14 eyes of the imperiled pilgrims were frozen dead ahead. Dieter moved so sure and steady, Karl was ashamed of his earlier apprehension. *"Pass auf!"* said Gunther. (Watch it!) At his command the pyramid made its usual midwire halt, a tremulous pause which never fails to dampen audience palms.

"Mario!" called Gunther sharply, *"WATCH IT!"* Then in a moment, "Good stand, everybody. *Alles gut."* (If ever anyone doesn't feel just right he tells the others and the pyramid either goes directly across without stopping or its top-mounter eliminates the perch on the chair.)

Now the band quieted to a whisper. Spectators could hear the men talking to each other and to Jana, giving her confidence in herself and in them, Herman telling her in German how to do what she already knew how to do, mesmerizing her into action. As Jana contorted her small body, agonizingly slow, from sitting position to triumphant stand on the chair seat, Herman watched her closely. (Pretty damn good for a yearling, he conceded to himself. If ever she fell could he grab her? He wondered, like once he grabbed Helen, in the four-pyramid, between his knees as he dangled from the wire—in Akron, when he was young, when those *Gott-verdammte* horses jerked the cable's deadman anchor. And that only other time the act fell—24 years ago in Schenectady, when the wire sagged —then he *missed* Helen, and she landed on the back of the boss-props. *Gott's* will be done; comes your time you go.) Jana now was safely down, back on her chair.

"Wunderbar!" breathed Herman.

"Don't nobody relax yet *goddammit,"* Gunther warned fiercely. He never considers a trick completed until all participants are safely back on the pedestal. In a moment he called, *"Langsam 'rein!"* (Slowly ahead.) The pyramid quivered to life and proceeded across the wire. *"Ruhig bleiben,"* soothed Gunther. (Take it easy.)

Over the show's loudspeakers the ringmaster sonorously droned, "Down through *all* the *pay*-jes of *hist*-tory no *queen* was evah *carr*-reed with *great*-tah care." Gunther smiled, as he always did at this fustian rhetoric; "Queen, hell," he said to himself. "She's in her damn bare feet."

The pyramid still was a respectable distance from its finish platform—12 feet, maybe 15, or a bit more—when Karl, up front, standing immobile like the captain on a ship's bridge, instinctively felt something go wrong. Dieter's pole was listing queerly. Karl heard his jib-man muttering to himself; he felt the pyramid give a strong whip. *Mein Gott!* he must be trying to shift his balance pole; don't *never* do that, how many times I tell you? Especially with the weight on you.

Fearfully, Karl called down, *"Was ist los? WAS-IST-LOS?"* For a few dreadful seconds Dieter didn't answer. Then he cried out, *"Ich kanns nicht mehr halten!"* (I cannot hold any longer!) Oh, *Gott,* that cry!

Before Karl could draw his next breath Dieter's hands opened, the pole rolled down his fingers, clanked against the wire and was gone, slicing down through space. Karl couldn't believe his eyes: this is a dream I am having, I must wake up. He shook his head; it was no dream. Dieter toppled like a felled tree and passed from Karl's balance-fixed vision. The drop seemed to take a thousand minutes. Then Karl heard a dull thump-thud, like the sound an elephant makes smacking its trunk angrily to earth—only more muffled. Down below, the red-frocked ringmaster stood dumbfounded as Dieter plummeted to the arena's concrete floor, skimpily coated with earth.

COMING . . .
Bill Veeck exposes baseball's inept managers.
NEXT MONTH IN TRUE

He smashed headfirst into the center ring, sending up a dusty splash of green sawdust and wood shavings. Shoulder high, he bounced and flopped like a discarded rag doll just inside the metal ring curb.

Then Karl realized that he too was falling. Why was it taking so long? He seemed to move as though deep underwater. It seemed so quiet; where was everybody? With a sudden crash, Karl hit the wire, hard, belly down. He screamed, but no sound came out. It felt like a meat cleaver had chopped into him. The heavy cable pressed into his left thigh. The foreleg was wedged painfully under the left incline of No. 4 sway-guy; over its right slant lay Karl's other leg. His torso jutted out in space, with the left arm hooked over the wire.

Before Karl had time even to think of prying loose, Jana, on *her* way down, smashed into his back, punching out what little breath was left. She hung fiercely, clawing like a sacred alley cat, her knees digging into Karl's kidneys.

Far below Karl could make out three blurry white mounds breaking the points of the huge red and blue star, decoration of the center ring carpet. Everything was shimmering, wavering; Karl gritted his teeth. Three down; but who? House lights on now. People milling frantically. Blue splotches must be police. Those red dots? Shriner fezzes? Maybe clown wigs. Musn't black out. *Gross Gott!* it hurt!

"Jana! Jana!" he cried. "Even if I leave my leg up here, I do not let you go."

Bit by bit she was slipping down Karl's back; she couldn't hold forever. If only he could get his arm around to grab her. Then from above he heard Gunther's calm deep voice. It sounded to Karl like the voice of *Gott* himself.

Gunther, too, had noticed the pyramid give itself that first whip. Boy, they're gettin' a corker, he thought, oddly dissociating himself from the others. Then he saw his shoulder bar seem slowly to lift, then soar majestically past his head.

"Goddam, it's *happened!*" he said aloud.

Mario, Gunther's shoulder-bar partner, was already going down. Jana's chair blurred past, a streak of white that seemed to caress the back of Mario's head. Like a rock, Gunther held. He knew that some were down; how many, he couldn't exactly tell, or who. He could just make out blotches of green and white below. He kept his eyes strictly on balance and held onto his pole. He heard none of the dreadful hub-bub below; to Gunther, the Coliseum was as still as the inside of a dry well. Then, almost at his feet, he saw his dad, Herman, hanging from the wire, scrambling to pull himself back onto it.

"I've still got my pole, dad," said Gunther matter-of-factly. "Hold still and watch out for your fingers; I'm coming over you."

Gingerly, Gunther stepped across his father. Looking like a ballet dancer in a hell of a flat-footed hurry, Gunther now duck-walked the wire swiftly to where Karl and Jana dangled.

To get into rescue position, Gunther had to step over Karl's inert body—a touch and go moment, but he made it. Now Gunther laid his balance pole crossways to the high wire at its junction with the sway-guys which trapped his uncle, and got down flat on the wire, his legs straddling it, his chest resting on the pole. This action freed his arms.

He lunged down, took a vise-like grip on Jana's right wrist, carefully peeled the girl off Karl's back and swung her into space. She screamed; that didn't faze Gunther. He held Jana so that Karl could take her free arm by its wrist. Now uncle and nephew waited for those below to rig a drop net. There was none. A tumbling mat was dragged in as substitute; it had no hand holds. The catchers dug their fingers into the mat's edge; hefty arms lifted it above the ground. Grimly, the men braced themselves.

"Jana," said Gunther softly, "we're going to drop you."

"Nein! Nein!" she screamed.

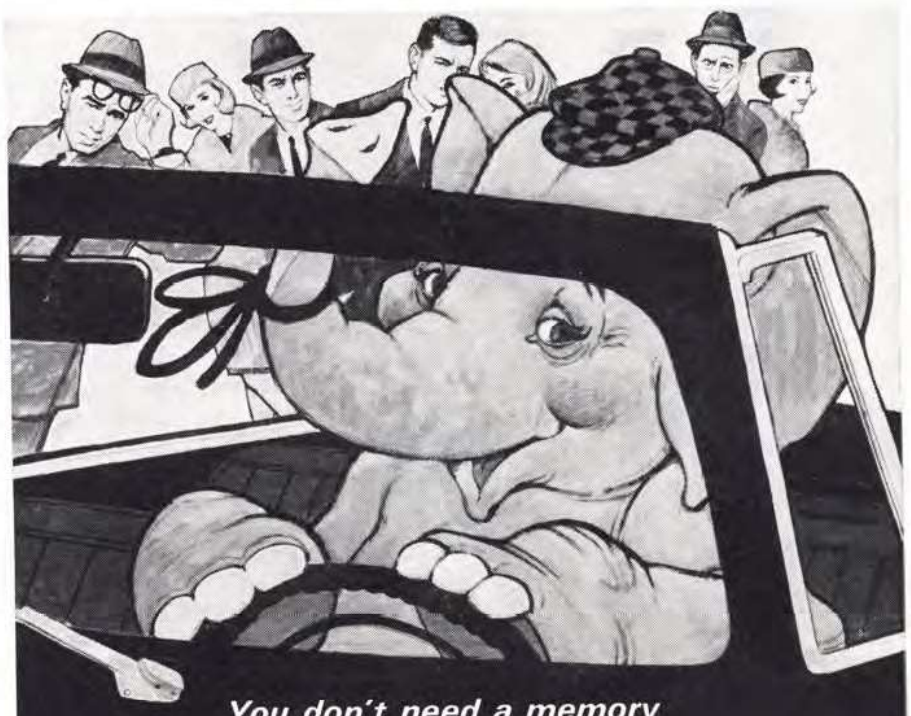
Ignoring her hysteria, Gunther spoke calmly to Karl. "We count together. At three, we let her go. Don't fight us, Jana. Please."

The men each took a deep breath. No use for foolish prayer, thought Karl; somewhere around be Herman's *Gott*, I'm sure.

"Eins . . . zwei . . . DREI!"

Jana went straight down, feet first, her arms flung behind—not the best way to drop. She landed badly. Her impact yanked loose the mat; she flipped to the floor, struck her head.

In the meantime, Herman had monkey-crawled along the wire to the nearest platform. There he waited until Gunther



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"Put a head on mine, please."

got Karl safely off. Herman then descended to the ring; on this occasion he omitted his usual flashy finish-cartwheel and back somersault. Karl remained on the pedestal, too shaken to move farther for awhile; he hurt all over.

Gunther, as he did every night at the act's conclusion, calmly lashed his pole onto the platform's railing, then went hand-over-hand down a rope to the ground.

Through a jack-straw tumble of balance poles and shoulder bars, Gunther went to his comrades. Several Shrine doctors were on hand and a priest. Everyone was waiting for the ambulance. Dieter lay inches inside the ring curb, blood spurting from his mouth, drenching his costume. Dick was on his back, one knee up, breathing faintly, easily, as though deep asleep. Mario was on his side, doubled in an almost fetal position, his mouth foaming, a piteous gurgling coming from deep in his throat. Gunther heaved with one deep dry sob. He turned away disconsolately and trudged along the backstage corridor.

After 20 harrowing minutes the show resumed. The band dashed into a trombone gallop and a bevy of grief-stricken clowns were tumbled out into the center ring.

Dick breathed his last 35 minutes later; Dieter hung on until just past midnight. Mario stayed alive, but in a deep coma. Jana was hospitalized; so was Karl—with a hairline pelvis crack, a double hernia and multiple bruises.

Gunther left the hospital at 4 a.m., the quietest time of night. He was up again at 9. At breakfast, a writer-photographer team from a national magazine fastened onto Gunther and began relentlessly to record his every word, every dog-weary expression, each hasty egg bite and coffee slurp.

Gunther and his dad worked the matinee; the act seemed puny, but drew thunderous applause. Back in the dressing room Herman told a newsman, "What we do out there today was nothing; *that* we can do in rain, snow, high wind—anything."

"Why don't you ever use a net?" inquired the reporter.

"A kid once tell me," replied Herman, "a net is only a lot of holes tied together *mit* strings. You can get bad hurt in a net, all that stuff coming down around your ears; you can break your neck if you hit badly and with seven, someone be sure to fall on someone else."

"That's right," agreed Gunther. "And a net is no thrill for the audience; with a net under us we don't get such good bookings—that's for damn sure."

For the evening show, Herman and Gunther were joined by a young Spanish wire walker, Gene Mendez, once a Wallenda trouper, now a star on his own. He'd been brought in from New York as the Wallendas' replacement, the circus promoter believing them finished. From his hospital bed, Karl watched both tabloid versions of his act on television. The next afternoon, Thursday, he showed up at the Wallenda dressing room draped in his well-worn camels' hair coat and rumpled brown suit, running a fever of 102 and determined to join his people on the wire.

"The doctors tell me stay out for a week or two," he said. "Against their wishes I am here, but not their orders."

He removed his trousers, revealing a left thigh bruised an ugly purple. Painfully pulling into red flannel costume slacks and golden silk shirt, Karl explained: "The only time in my life I am laid off the wire was yesterday. Only just an *appearance* would be good enough today, but that I don't want. You know me: it must be that I go up. Up there, on my work I can concentrate. Down here, two people I see dead and my son dying."

He closed his tired eyes, pink-rimmed from weeping, and with stubby middle finger and thumb rubbed them toward his nose bridge. "Like a heavy dream it is. Did ever you haf a heavy dream, one like you can't get rid of? The greatest grief of my life, on my conscience, but I do not feel guilty. Always, as father of The Great Wallendas, I do not stand below, safe on the ground giving orders. *Nein*. Always up there, the same chances I take. I was up there higher than Dieter. From East Germany I bring him: I want him to like America as me. All he had to do is hold up his pole, hold up his pole." Karl dropped his head and wept.

It was discovered that a headstand caused Karl a slight blackout, so for the matinee he did only the traditional group salute, a handstand on Herman's shoulders and a midwire chair stand on shoulder bar, climaxed by a bravado lift of balance pole overhead. On one wrist glinted Karl's plastic hospital identification bracelet.

Of this trick one Detroit newspaper said: "It looked for an agonizing moment as though tragedy might repeat itself when the chair swayed dangerously as Karl stood up, waving to the crowd. He fought for balance, got it, sat down, and rode to the safety of the platform." Case-hardened circus hands coolly appraising the act's renascence knew better; they recognized and admired the chair tremor as the "selling" masterpiece of the *maestro's* long career.

Backstage in the dressing room, Karl began to weep again. Under the sawbuck table lay Mario's scuffed motorcycle boots, the fallen trio's high wire slippers and slop shoes in an untidy pile. Over in one corner, stuffed into a large brown paper shopping bag, was Dieter's white satin costume, its front stained by dried blood, a huge spot the color of spilled coffee. Gunther took one of Karl's hands in his own. "Uncle Karl," he said quietly, "this day you showed them something great, that life must go on, no matter what. Every single human being out there in the seats this afternoon now goes home better able to face his own problems. We got to go on selling courage. It's our job. We're circus people."

There was a long silence. Finally Karl spoke.

"*Ja*," he said, shaking his head. "*Ja*, ja." Then, briskly businesslike, "Now we sit down *und* make som'ding together. We put back in, the revolve—the girl is ready to go up. Her father phone her from Kentucky that she cannot fall: too much squirrel in her, she has. *Und* the chair-stand, by Cleveland we do it—maybe *mit* bicycles; I figure out some way to sell it better. We make the whole act by then, by all means—except 'the seven'. I cannot now say if ever we do it again. Time for replacements, time to teach; time—it all take time."

The remaining Wallendas put their heads together in a babble of high wire shop-talk, rebuilding their act, bickering over technical details.

Gunther felt a sag of relief. The death knell had stilled. The Great Wallendas were going on. —**Bill Ballantine**

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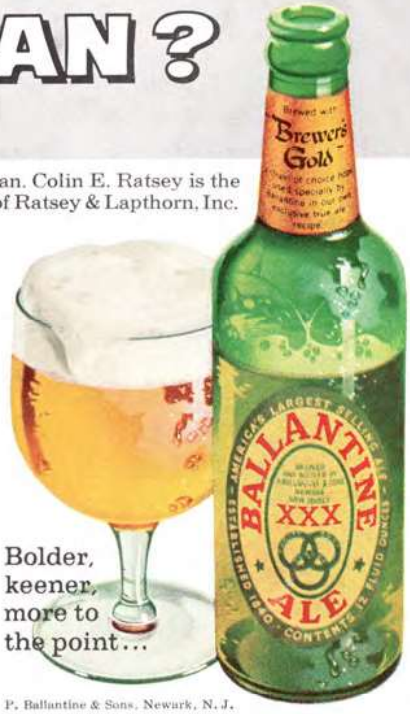

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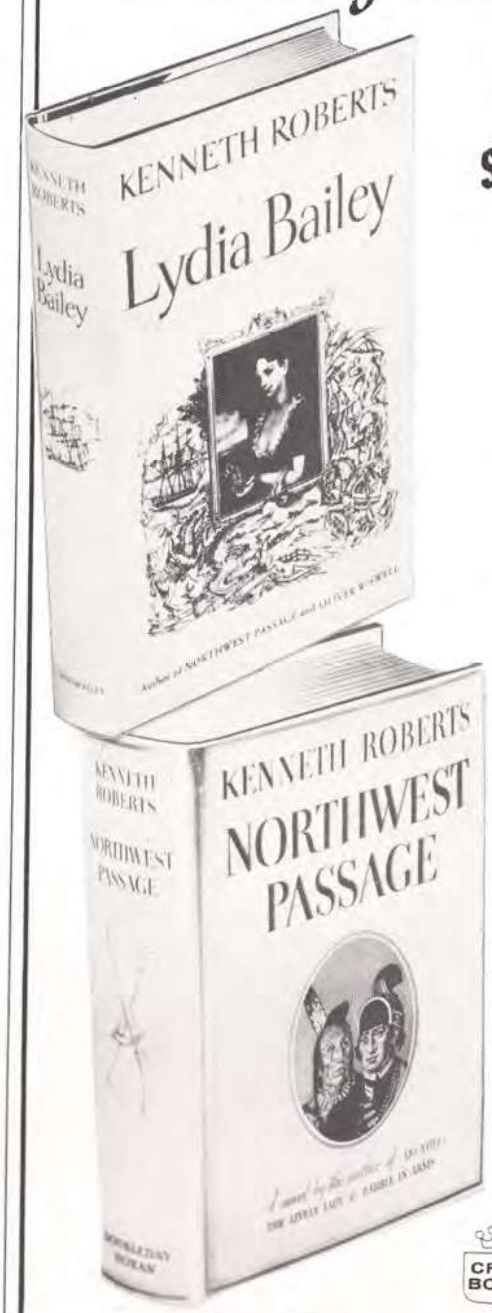

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We Fished to the End of the World

[*Continued from page* 45]

Bariloche lakes have so many branches and inlets that by ducking under a bridge into what seemed to be a junior-sized creek—but eventually turned out to be the entrance into another vast lake system—we got out of the worst of the gale and set our lines.

In contrast to George's suggestion about deep trolling, our guide told us that shallow-ledge trolling would be our best bet at that time and not to let out more than about 80 yards of line. This seemed reasonable to us. The glacier-fed lakes of the Andes are so cold that only in midsummer would the fish find it necessary to dive deep to avoid warm surface water. The guide told us that they do most of their feeding at the foot of the innumerable cascades that pour into the lake from the snowfields high above. I was using a Garcia fast-taper spinning rod and a Pflueger Limper lure while Colonel Miller, fishing beside me, had a Heddon casting rod and was using a spoon.

Ivan Brady got the first fish—a 4-pound landlocked salmon, thus winning the $1 pool for the first catch. For the last hour, the mountain peaks had been collecting clouds as black as a widow's weeds and now the whole mass swept over the lake. When it was directly overhead some supernatural agency pulled the plug and it didn't just rain; I couldn't say whether we were trolling or skin diving.

But the rain brought luck. At the base of a waterfall, Colonel Miller yelled "Strike!" and with a jerk of his rod set the hook. At once the rain was forgotten. Leaving the wheel, our guide hung over the boat's transom with a gaff while the colonel expertly maneuvered what seemed to be a salmon within reach. A jerk of the curved gaff hook, a wild explosion of spray, and the fish was hauled aboard drumming on the planks with its tail. It turned out to be a brown trout weighing 9½ pounds—a very fine fish which later got the colonel a signed certificate from the Bariloche *Asociacion de Pesca y Caza* and an honorary membership in that organization.

It was close to 10 o'clock when we returned to the wharf, for at that time of year the sun doesn't set until nearly 11. Everyone had a nice catch of browns and rainbows with Mister Mac getting an 8-pound rainbow on his light 8-pound-test line. Considering the bad weather and high water, this wasn't so bad.

While thawing and drying out around the hotel fireplace that evening, we were introduced to Ed Henke, a tanned, energetic young German who is regarded as one of the top Bariloche guides. As none of the party was particularly interested in trolling, especially on the foam-covered lakes, it was decided to spend the next couple of days fishing along the Limay River which rises in Lake Nahuel Huapi.

We left early the next morning and drove north along the blue waters of Nahuel Huapi, passing several small streams where youngsters were fishing with line wound around tin cans which enabled them to cast as though they had spinning reels. The countryside was wild and desolate with low hills, rocky promontories and clumps of sage much like parts of our Southwest. Occasionally we'd pass the sod huts of Chilean Indians who had crossed the mountain passes to settle here, not being allowed to own land in Chile, and more rarely a homesteader's cabin always surrounded by a windbreak of tall poplars, the only trees on the bare pampas.

Sometimes in the distance we'd see a gaucho, sitting on the pile of sheepskins that served as his saddle and usually followed by half a dozen wolflike sheep dogs.

The Limay turned out to be a fast-flowing mountain stream some 30 yards wide and fringed by bushes. Flies were useless in the high wind. In waders, knee boots and even sneakers we spread out along the bank fishing for rainbows and brook trout. When one pool was exhausted or brought no results, we'd return to the car and Ed would take us on to a fresh spot.

The fish ran from a pound to a pound and a half—just about the right size to fit in a frying pan. For some time the record was held by Mister Mac who got three in 15 minutes until Ivan Brady took eight in 45 minutes. Although he had reached an age when most retired gentlemen are concentrating on a pipe and slippers, Mister Mac was quite capable of standing up to his armpits in ice water 10 hours a day and expertly flicking a Flatfish into the far edge of the fast water. "I'm perfectly willing to stay here for the whole trip," Mister Mac announced contentedly. "I don't need to catch big fish to make me happy any more."

Not all of us were as philosophic as Mister Mac, so no one complained when we left the Limay and started out on a three-day tour of the lake district lying some hundred miles north of Bariloche where, according to rumor, the waters hadn't been fished as much as those near the town and we could expect some really big fish. Our guide on this trip was Paul Torres, a leathery Basque who had spent most of his life in Argentina and owned a Greenbriar bus that could hold the whole party.

The first part of the trip was along the now-familiar banks of the Limay. Then ahead appeared rank after rank of snow-tipped mountains and we began to climb through great forests of *coihue*—90-foot trees resembling a live oak but with leaves like holly. Our first stop was at Lago Traful, a lake almost completely enclosed by the frosted peaks.

Torres had come prepared with a collection of heavy brass spoons which in the strong wind proved far better than any lures we had brought. Casting well out into a patch of rough water, Mister Mac got a strike. There was a flash of silver against the dark water as a salmon rolled, then raced away. After a 20-minute battle, Mister Mac had worked the salmon into the shallows but as soon as the fish felt the pebbles under its belly, it was off again. Torres waded out to help but before he could get hold of the straining line, stones rolled under his boots and he went into the icy water. By the time the fish was beached, Torres was soaked and Mister Mac willing to relax for the next hour. The fish was a magnificent 8-pound salmon.

We spent the next few days going from dark-blue lake to lake, all caught in the folds of purpled mountain slopes silvered by countless tiny streams that flowed over the path every hundred yards. At night, we stayed in lodges run by Swiss immigrants. They were immaculately clean and featured cuckoo clocks, *facones* (ornamental knives used by the gauchos), alpenstocks, ponchos, and photographs of the Matterhorn and Tronador Glacier. Their staffs spoke fluent German, French, Italian and Spanish but not English because, as one proprietor explained, "We get very few Americans here."

Each fisherman operated according to

TRUE

"Try cutting down on your backswing."

"He knocked down a stand-up comic."

his own personality. Colonel Miller was frankly on a vacation and took his fishing as pure sport. Arthur Johnston was more serious and his moods varied with his luck. Mister Mac was quiet and systematic but the ex-banker, Ivan Brady, always seemed to be in luck. He caught at least five fish for everyone else's one, pursuing his prey with the care and energy he had once displayed in tracking an elusive dividend to its lair. His method was to try half a dozen casts in one spot and then, if no results, move along the bank a few yards and repeat the process. Using this technique he covered so much ground that it was the general opinion that he ran the fish to death.

Not that the others didn't get their share. Arthur Johnston remarked wistfully, "I only wish the boys back in Toronto could see me throwing back three-pound trout as too small." Colonel Miller got six brook trout averaging about 4½ pounds in two hours and an 8-pound salmon. "Of course, a Texas salmon would be much bigger—if we had salmon in Texas," he pointed out.

I was particularly impressed by the absences of mosquitoes, gnats, black flies and all the other miniature vampires which generally make fishing a misery. In fact, none of us encountered any insects except Mister Mac. While crossing a fallen tree on his way to a pool, a nest of inch-long, jet-black fire ants fell into his waders. The ants were so astonished that they didn't go into action until Mister Mac had waded far out into the ice-cold waters of the lake and was preparing to cast. Then they suddenly attacked from the rear. I will draw the veil of charity over what happened next, merely saying that the spectacle combined the death throes of the great sea serpent as described in Kipling's *A Matter Of Fact* with the immortal moment in ballet when Nijinsky bounded through the open window in the *Spectre de la Rose* and executed 10 *entrechats* before hitting the stage—and Nijinsky wasn't wearing waders.

We worked our way slowly back to Bariloche, spending our last day fishing on the northern arm of Nahuel Huapi. Here we were subject to the full force of wind howling down the slopes of the Andes, high waves, and a rocky shore that devoured lures as though they were peanuts. Anyone lucky enough to obtain the brass concession on the areas we fished can make himself a fortune. The whole business finally resolved itself into a ceremonial throwing of spoons, Limpers and Flatfish into the waters of the lake in much the same spirit of sacrifice with which the ancient Mayans flung offerings of gold and jewels into the sacred well at Chichen Itza.

The next day we were given a dinner by the Bariloche Fishing and Hunting Club. Our own modest exploits paled before tales of men who caught 60 trout averaging over 5 pounds in a day and salmon weighing 18 to 20 pounds. "But to do that, you would have to pack into lakes not reachable by car," the club's president assured us. "And such a trip would take at least 20 days."

After talking to members of the club, we came to the following conclusions. The best time for fishing in the Bariloche area is generally from December 15th to the end of the season on April 15th. First-class fishing can be had in the waters readily reachable by car—a good angler should be able to get his legal limit of six fish a day. But for really outstanding results, you should go to lakes well in the interior and camp out. This would take some planning, for in general the guides aren't set up for trips of this nature which is why these waters are still virtually untouched. You should talk over the trip carefully ahead of time with experienced members of the Fishing and Hunting Club.

A rubber boat would be a big help either for trolling or for crossing the inlets, and waders are almost a necessity. In some of the more sheltered areas, fly fishing is practical after December but most fishing is with flashing spoon-type lures, and we got best results with the local ones from the Bariloche shops. Even in midsummer (January and February) it's cool, and insulated underwear is a comfort. Incidentally, that common misery of tropical countries known humorously as the "tourist's trots" or "Montezuma's revenge" seems to be absent in Bariloche—at least, none of our party suffered from it. The bugs can't stand the intense cold of winter.

We now headed south to fish waters seldom seen by white men. The question was whether they had ever been seen by a fish either, as virtually nothing about the Tierra del Fuego area could be learned through the usual tourist channels. We were to travel by DC-3 as no jets made the trip and the problem of luggage became paramount. Experienced old travelers, we all traveled light—none of us taking more equipment than would have been necessary to outfit the *Pequod* for a three-year cruise around the Horn. Ivan Brady had a wooden box—christened Pandora—to carry his fishing and hunting equipment which bore such a remarkable resemblance to a coffin that people instinctively removed their hats when passing. Arthur Johnston had 39 pounds of shotgun shells hung around his neck like the Ancient Mariner's albatross; a resemblance that didn't stop there as he discovered later.

At a place called Rio Gallegos we missed our plane connections due to bad weather. But Señor Ocampo, Governor of Tierra del Fuego, generously made his private plane available to us so we could go on to Ushuaia, the southernmost community in the world at the extreme tip of South America. Governor Ocampo is enthusiastically trying to build up this last great frontier, rich in sheep, oil and lumber. If he could only export the scenery he'd make a fortune. Not even in Bariloche had we seen anything to touch the magnificent mountains, great waterfalls and endless forests.

Ushuaia itself is so like an Alaskan fishing village that I half expected Eskimos would sidle up to me offering to sell genuine walrus ivory carvings stamped out of celluloid in the Bronx. The town is surrounded on three sides by snow-clad mountains. The fourth side admits an uninterrupted view south to the pole. The wild life consists of penguins, seals and the huge South American condors—the biggest flying birds in the world.

We moved into what seemed to be the town's only hotel. The Governor had warned us, "Don't expect the Waldorf-Astoria," and he wasn't just whistling Dixie. The hotel was built of Oregon pine, brought in by clipper ship during the gold rush of '49. Although accommodations were on the simple side, the proprietor and his family were so friendly and the meals so elaborate that no one complained. With the uncanny instinct of pigs digging out truffles, we found our way to the cozy bar and there made the happy discovery that as Ushuaia is a free port: Scotch sells for $3.50 a quart. "By God, gentlemen, at these prices we can't afford not to celebrate," exclaimed the colonel, a sentiment that was heartily supported.

The next morning, we set out with a guide to fish Lago Rico, some 50 miles from the town. A high wind was blowing and the guide told us that only the week before the wind gauge had registered 160 mph before it disintegrated. Mister Mac, clutching the last of his lures like Niobe clinging to her surviving child, asked if such winds were common. The guide promised us that the wind often dropped to no more than hurricane force. Thus encouraged, we went on to Lago Rico.

The side of the lake where the road ended was swept by the full force of gale but by crossing the lake in a small boat —an operation no more hazardous than going down the Colorado River on a pie plate—it was possible to reach the lee shore. No one tried it but the indefatigable Ivan Brady who then proceeded to plod out into the foam-flecked waters up to the edge of his waders. After six hours of the high wind and biting cold, I noticed that the penguins were moving in for the kill and decided to quit. Everyone but Ivan soon joined me, no one having caught anything. We spent the next two hours praying that Ivan wouldn't drown and the next four hoping that he would. When Ivan finally joined us, he had three 4-pound rainbows and asked what we thought he should do with them. Everyone was happy to tell him and we returned to the hotel in a frozen silence.

After a transfusion of hot toddies, we addressed ourselves to our talented tour directoress, Miss Juliet Bridgman, pointing out that as Amundsen and Scott had already discovered the South Pole, there was no need for us to emulate them, and adding that another such day would cause a brass monkey to start singing soprano.

Miss Bridgman then broke the glad tidings that no plane was expected out of Ushuaia for a week and due to the gale, no boat could put to sea. We all emitted cries of delight at this information and finding an old lariat on the wall, were busily engaged in fashioning a hangman's noose when the resourceful Juliet managed to discover a Greenbriar coach with a driver willing to take us north over the mountain passes to a place called Rio Grande. Juliet had heard wonderful things of fishing at Rio Grande and, as she pointed out, "a trip over the Andes at this time of year will be an unforgettable experience."

She was dead right. The first part of the trip was pleasant enough, past green slopes covered with turf as fine as the mat of a billiard table and studded with golden dandelions. We crossed raging torrents on log bridges and every mile the country became more primitive and more dramatic. Also, the road became worse. Then we began to climb toward the line of saw-toothed peaks crested with snow that formed a wall between Argentina and Chile. Above us towered red crags veined with drifted snow, each ending in a creamy cascade that poured over the road. As we continued to climb, patches of snow began to appear alongside the rutted dirt tracks and the streams grew more numerous.

Now our driver began to run into difficulties. If he kept to the tracks, he bogged down or hung up the car on the high center. Each time he had to get out and push. We did everything in our power to help, leaning out of the car windows to shout suggestions, all of them contradictory. But the Latin temperament is unable to understand American

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efficiency and after a few such experiences, the driver was willing to commit suicide if only he could take us with him.

He decided to straddle the ruts which meant that the wheels on one side of the car were perpetually overhanging the abyss where great condors drifted far below us. There was a sheer drop of over a thousand feet into the valleys and in the slush and mud, the car skidded back and forth like a drunk on roller skates while the driver wrestled with the wheel.

Although absolutely fearless myself, I am humanely opposed to cruelty to dumb animals, and was fearful that when our car did finally go off the road, we might happen to hit a condor on the way down. I suggested this possibility to the driver and offered to get out and walk but he told me that by now the condors were used to dodging cars that came hurtling past them. Thus reassured, I was able to concentrate on an animated discussion between Ivan Brady and Colonel Miller on the proper way of tying dry flies. Once we did get really stuck and would have been there yet had not a construction gang of Indians come along and dragged us by brute strength to the top of the pass.

Here even in my semiparalyzed condition I was able to appreciate the view of Lago Fañano, another of the miraculously lovely mountain lakes, and beyond it miles of noble forests stretching *north* toward the Strait of Magellan. We were unable to linger long, for behind us a shroud of rain was beginning to form and the driver expressed his opinion that if we were caught in the torrent the road might become difficult. With the storm breathing down our exhaust pipe, we took off down the twisting trail like a goosed chamois.

It was impossible to control the skidding car and we seemed to go sideways as much as any other way. To insure against ennui as we rocketed around the hairpin turns, Mister Mac regaled us with stories of accidents he had witnessed, each more grisly than the last. "Reminds me of that stretch of road in Luzon in the Philippines," he remarked cheerfully. "Lake at the bottom was so full of wrecked cars you had to use wire leaders or the fish would cut your line on the broken windshields. See that curve ahead? Saw a bus with 53 people go off a place like that in Hawaii. Terrible tragedy. Made such a splash when it hit the river the fishing was ruined for three weeks."

When we reached the flatlands I removed my hands from the dashboard which I had twisted into a mass of tangled metal and prepared to relax. At this moment, Arthur Johnston awoke from a pleasant snooze and announced that he'd left his box of shells in Ushuaia. "Well, we'll have to go back for them," he remarked brightly. To avoid a diplomatic break between Canada and the United States I won't say how this suggestion was received but after a brief conference we went on with Arthur bound and gagged in the rear seat.

We passed swamps full of some species of mallard with white markings on the wings and thousands of small, teal-like ducks. Brady grabbed for his shotgun but then arose the question of how he would get any ducks he shot. No one had thought to take along either a boat or a Labrador retriever—although, heaven knows, we had about everything else—and as it was growing late, we decided to press on.

The sun was setting over the mountains in distant Chile when we reached Rio Grande, a small town on the river by the same name. Because of the oil strike, the few hotels were filled to the lobbies but we were told that by driving another 30 miles we would come on the camp of Tennessee Argentina, an American oil company that might be sufficiently moved by compassion to take us in.

If anyone is planning on being shipwrecked, I would urge him to do it near an installation of Tennessee Argentina. True, the spectacle we presented by the time we arrived late that evening would have melted the heart of a Heliogabalus but even so the reception we received would have done credit to the good Samaritan. By a miracle of luck, the main bunkhouse had just been completed—the paint wasn't even dry yet—and after soaking for an hour under hot showers, we staggered to the cookhouse where we managed to choke down a light repast consisting of soup, two-inch steaks, pie à la mode and several gallons of American coffee.

Everyone in the camp was an enthusiastic fisherman and during supper we heard tales of three men who had got 109 fish in a day and one fellow catching 47 in an afternoon. As no one seemed to be smoking marijuana, we decided to believe them. Lynn Robertson, one of the engineers, explained, "If it were spring you could fish the Rio Grande near the town. In March I've seen Indian fishermen coming back from there with piles of 10-pound trout and salmon carried like cordwood in frameworks on their backs. But the river's in flood right now. We'll have to take you to a place on the Rio Chico some of our boys discovered when they were lost. I can promise you some real fishing."

We set out the next morning with Robert Slaydon driving one of the company's heavy-duty trucks. The drive was a scenic delight and an ornithologist's dream. Ducks of all sizes and species rose from the lakes as thick as flies in the Calcutta meat market, flocks of noble black-necked swans glided overhead and the shores of the streams were pink with flamingos. Ivan Brady took his shotgun and went out to see what he could bag. He got three gooselike birds that we afterward learned were called *caiquenes*. As one of these big geese eats as much grass as a sheep in the course of a year, there's a bounty of a peso apiece on them.

Driving to the stream took six hours, four on what passed for roads and two over the pampas which, although flat, were so rough the truck's speed was literally less than a mile an hour. Then we came on a silver stream twisting like a snake with colic and wet our lines.

The stream wasn't more than 10 yards across at its widest and after the great lakes and rivers of the Andes, didn't seem too promising. I saw Arthur Johnston look at the rushing water dubiously but he tossed one of the heavy brass spoons we had got in Bariloche into the edge of the fast water, waited until the lure had a chance to sink, and then worked it back through a little pool. He cast again and still again. Then something struck. It shot downstream with Arthur yielding it line and then catapulted into the air—a fine rainbow. While Arthur was still playing it, I saw Colonel Miller get a strike. Then Ivan Brady.

Arthur beached his 3½-pound rainbow and cast again. The lure was taken as it hit the water. "By golly, this place is paved with fish!" shouted Arthur in excitement. In the shallows, the fish rolled, showing a red belly. It was a brook trout, weighing about the same as the rainbow. Far downstream, I saw Mister

TRUE

"It doesn't concern you. It's just a little bet Doctor Martin and I made."

Mac with his rod bent like a question mark playing another fish.

In an hour and three quarters, the group had caught 78 fish, all trout (mostly rainbows and brooks) all over 3 pounds and one 5½ pounds. Ivan Brady, as usual, was high man with 28 fish. It isn't enough to say none of us had ever experienced anything like it before; no one had even suspected anything like it could exist. Legally, we were allowed a limit of six fish each but as photographer on the trip I asked my colleagues to break the law so I could take a picture of the catch. The fish certainly didn't go to waste as they were a welcome addition to the camp's cookhouse and from that day on, the group turned loose all the fish they caught to make amends.

After three days, we left by plane, taking a sad farewell of our friends at Tennessee Argentina whom we had knocked out of three days' work, eaten out of house and home, and preempted all their available heavy-duty rolling stock. Our group separated in Buenos Aires.

There were several famous fishing spots in Argentina which we missed, including Esquel a hundred miles south of Bariloche, and Lago Argentino on the west coast. But I think we saw enough to have a good general idea of the fishing conditions.

Our group of anglers, who had fished nearly everywhere in the world, all agreed that allowing for the fact we had come down too soon, Argentine fishing is as good as the best. Probably to get really record fish, it is necessary to go to out-of-the-way spots. The problem is to know where these spots are.

Unless you're lucky enough to hit a group of expert anglers with transportation and the willingness to put themselves out for you, a tourist will have trouble locating "fabulous fishing" areas on his own. The Rio Grande area was by far our best spot but there are no guides there and no commercial transportation —except taxis in the town—which is exactly why the fishing is so good. By last November a big new hotel was scheduled to be built there and quite possibly transportation will now be available; if not to the Rio Chico at least to the Rio Grande itself which in spring should be excellent.

Fishermen who haven't the time for such a far venture can pretty well count on George Kennard's formula that the fish will run twice as large and three times as many as in the United States or Canada. If that doesn't content you, you're going to have to work for your fish —just like anywhere else.

—Daniel P. Mannix

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The Doctor and the Murderous Mistress

[*Continued from page 35*]

Frau Kloo agreed on a suicide pact. So I don't think you will be able to find justification for an exhumation."

Relieved rather than disappointed, Gunther Praun fled. He had done his duty by his father, and hoped now that the whole case would be forgotten and the scandal allowed to die down. Funny, though, that Vera Brühne had not come to the funeral. . . .

The unsolved murder is not a perfect murder because its record on the police files is, in itself, an imperfection. The truly perfect murder is one in which no one but the murderer knows that a murder has taken place at all, and as such, it is beyond the calculation of history. But who said anything about a murder in the case of Otto Praun? Well, Vera Brühne did, for one, and so did a lot of Munich gossips.

Vera, to say the least, seemed unconcerned over the death of her rich lover. Although she was 50 years of age, she was a woman of startling beauty, very blonde, with large, laughing blue eyes and a splendid figure. She came of a good family. Her father had been a mayor of Essen, and she had had two distinguished marriages, one to a successful actor in the Munich Residenztheater, and one to an equally successful composer of movie scores. She lived with her 19-year-old daughter, Sylvia Possy, who was as lovely and as graceful as a young Artemis, in a spacious five-room apartment on Kaulbachstrasse in Schwabing, the artists' and intellectuals' quarter of Munich.

Vera had beauty, wit, and some money, but what made her chiefly appealing to her special circle of friends was that she was utterly and totally amoral. She was what the French call *vicieuse*, a word which has nothing whatever to do with the English "vicious." She gave "curious" parties with lots to drink, and orgy parties where everybody, including Sylvia, stripped to the buff. Her frequent partner at these orgies was an attractive woman called Jo Müller Weigand who, although she plays little part in this story, tends to pop in and out at critical moments. Vera and Jo between them gave the strangest party of all, a party for four, of whom two did not know that a party was going on at all. Vera and Jo hid in a wardrobe and watched Sylvia seduce Jo's 14-year-old son.

Munich, it should be said, is one of the great play-cities of Europe; unlike most other cities of Germany, it believes that gaiety and *Gemütlichkeit* are at least as important as making money. The *Faschingfest*, from January to March, and the *Oktoberfest* are two unbelievable seasons of costume parties, streamers, confetti, masks, beautiful girls, foaming Bavarian beer, drunkenness and sex.

Munich is also a village. One will see the same sophisticated faces in the same smart places: Chez Heinz, the Madame Club, Gisela's, the Scotch Club, the Saint James's Club. In Munich everyone knows what everyone else is doing, and with whom everyone is sleeping.

A decadent society such as Munich's has few moral objections to whoredom, and Vera made a nice living on the side as an expensive call girl, inviting men to the apartment on Kaulbachstrasse. She was also quite happy to pimp for Sylvia. There was a mystery in Vera's life, a mystery in the form of an inarticulate, lowering brute of a man, who seemed to emerge out of the shadows at a snap of the laughing Vera's fingers. His name was Johann Ferbach, and he was a builder's laborer and a petty gangster. Occasionally he was invited to Vera's parties, where he stood around tongue-tied in his cheap sports clothes. It was known that he had saved Vera's life in an air raid during the war. Society, sniggering, accepted the conventional conclusion of what service this red-necked clod now rendered in Vera's life.

After Otto Praun's death, Vera's parties became noisier than ever, noisy enough to reach the reluctant ears of Gunther Praun, who was like a man trying to sleep but could not because of the people racketing about upstairs. Rumors reached him which actually linked Vera to his father's death.

One evening, at a party on Kaulbachstrasse, Vera rose and announced to her guzzling, necking guests, "Ladies and gentlemen, this is to be a murder party to celebrate the death of the late, lamented Otto Praun. We will take the basic situation, Praun lying dead with his gun in his hand, and one by one decide how he was killed."

"You mean a suicide party, Vera," said one of the guests.

Exhilarated by whisky, Vera cried, "That's not what I said. I said a murder party!"

The story came back to Gunther Praun. He could keep his head in the sand no longer. He called on a district attorney who had been a friend of his father's, and together they went back over the events leading to the two deaths.

Otto Praun was last seen alive on April 14, 1960, in his surgery on Lindworumstrasse. He seemed in reasonable spirits. Always a dandy, he fastidiously belted his camel's-hair coat, adjusted his Homburg hat to a correctly rakish angle, and said to his receptionist, Elfriede Meyer, "I must leave now. I have to see a Dr. Schmitz, who wants to buy my place on the Costa Brava." He left in his Mercedes.

He did not return that day, but Elfriede Meyer was not disturbed. In fact, for several days she did not worry. Praun often disappeared mysteriously. But the days lengthened into a week. Urgent cases awaited his attention, and she had to turn patients away from the surgery.

All at once Elfriede did start to worry. Early that day she telephoned her boy friend, one Hans Vogel, and said, "I have a feeling something awful has happened. I'm going to close the office, and I want you to take me to Pöcking."

Loyally Vogel appeared in a taxi, and they drove the 20 miles out from Munich. Pöcking is a fashionable community which numbers among its residents not only the distinguished, but royalty as well, such as Prince Otto of Habsburg, Pretender to the throne of Austria.

As Elfriede and Vogel approached Praun's villa, the crackling noises of the taxi tires on the pebbled driveway and the brittle sounds of the birds made the manifest silence of the house ominously oppressive. The taxi was paid off, and as it went away Elfriede and Vogel contemplated the shuttered villa.

The windows were closed. The milk on the doorstep had gone sour, the bread beside it was hard. Speaking in low voices—they could not have explained why—the couple walked around the house seeking some means of entry. On the terrace they found a door that yielded. At once curious and fearful, they went in. Although it was the morning of a lovely spring day the curtains were closed. An even more eerie sight was the huge chandelier burning brightly in the baroque living room. A bottle of Scotch and two half-filled glasses stood on a coffee table. But most obvious was the smell, and the nervous couple sniffed distastefully. They switched on the light in the darkened foyer—and then they saw Dr. Praun. He was still wearing his camel's-hair coat, but his Homburg had rolled a few feet off. A pistol was by his right hand, and blood had dried black on his forehead. Elfriede screamed. Vogel, though terrified, scouted through the house, and in the basement kitchen found Praun's housekeeper, Frau Kloo, an attractive woman of 48. She was also dead.

The Pöcking murder squad duly arrived at the villa, led by Inspector Carl Rodatus, aged 38, one of those unfortunate cops whose bungling occasionally gives light relief to classic murder cases. Rodatus looked around him keen-eyed, then saw something that stopped him in his tracks.

"Look!" he exclaimed.

"A clue?" asked Elfriede and Vogel, excited.

"Scotch!" cried Rodatus, his eyes now sparkling.

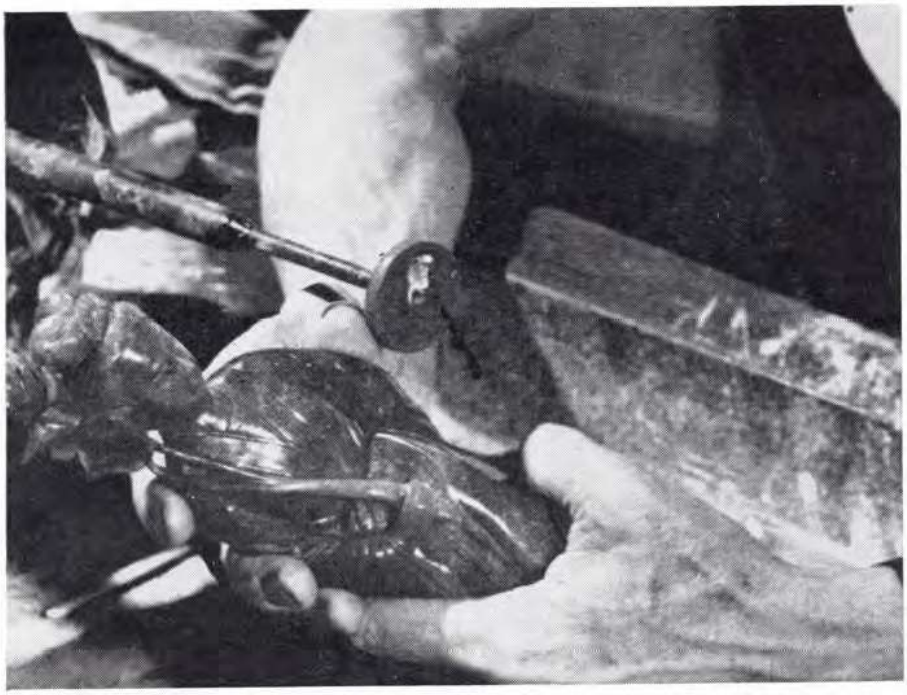
Scotch is an expensive drink in Ger-

[*Continued on page 102*]

man to man ANSWERS

from the staff of TRUE

Courtesy Jewelry Industry Council



Jade must be carved by rubbing, a very intricate skill passed from father to son.

What's the toughest gem? asks Hobart Jones of Washington, D.C. A Bronx cheer to the chorus that answers, "The diamond, of course." To be sure, the diamond is the *hardest* gem. In fact, it's the hardest natural substance of any kind, but it's brittle and cracks rather easily. For all-around toughness—that is, the ability to withstand actual hammering—one gem stands out above all others. Anvils have even been made of it, and yet, curiously enough, it's generally thought of as being fragile.

What we're talking about is jade, the name applied to two similar-looking complex minerals, nephrite and jadeite. Intricately carved jade vases and figurines may look delicate, but they have survived droppings onto hard floors.

Perhaps this toughness is the reason why jade is prized in many parts of the world as a real man's stone. The Maoris, who called jade "ax stone," wouldn't even permit a female to come near a man fashioning a knife, ax, or arrowhead of jade. The Spanish called jade *piedra de yjada*, "stone of the loin's," because of the Aztec belief that it was inhabited by the masculine life-giving force. Just contact with it could, supposedly, rejuvenate a flagging male, and, used properly, it was said to be potent enough to bring the dead back to life.

If jade's so tough, how do they carve it? That's the rub—literally. It's almost impossible to chip it into any sort of design. The Chinese rub it with abrasive sticks or thongs drawn back and forth across fine sapphire or diamond dust.

Aztec jade long posed a mystery. When the Conquistadores looted Mexico, they put pressure on the Aztecs to turn up more jade artifacts. Trouble was, the Aztecs didn't know where the stuff had come from. They'd gotten it from some southern tribes who claimed they'd acquired it from tribes still south of them. Four hundred years went by and no jade was ever found in the ground in either North or South America.

Then, in 1884, a Navy lieutenant, George M. Stoney, found tools of jade being used by Eskimos in Alaska. Years of searching got him to the source—a mountain just full of it. After that, jade was found in California and Wyoming. But it was only 10 years ago that searchers turned up the probable source of the Aztec jade—a mountain in Guatemala.

Today the biggest chunks of it continue to be found in Alaska. One mammoth boulder weighed 20 tons. With prime jade bringing up to $50 a pound, plenty of green stuff in that. We mean money, of course. Jade is by no means always jade green. James Lewis Kraft, the cheese man, a leading jade authority, had 200 different colors in his collection. They ranged from dead white to jet black, from bright blue to blood red.

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Q: When and where did the famous outlaw, Midget Fernekes, operate? ***R. W. Gilchrist, Omaha, Neb.***

A: Henry J. Fernekes was well known in the 1920's, particularly in the Chicago area where he committed several crimes. He was 5 feet 4 inches tall. In Chicago, in 1924, he held up the Inland Trust and Savings Bank and escaped with $4,000. In 1925 the Pulaski Building and Loan Association was held up and the cashier killed. Fernekes and two companions were accused of the crime. Later that year Fernekes was arrested in the John Crerar Library in Chicago where he was reading a technical book on chemistry. He was convicted of both crimes but the verdict in the cashier's murder was later reversed. In 1935, while serving a life sentence, Fernekes committed suicide by poison. His career included three killings as well as numerous bank robberies.

Q: Is it necessary to have dust particles in the air before a cloud can form? ***Sgt. D. P. Tobin, Quantico, Va.***

A: Clouds are an aggregation of minute drops of water suspended in air. Theoretically such drops could form in perfectly clean air but it would require a condition of extreme supersaturation before this could happen. Such conditions do not occur in the natural atmosphere and are difficult to produce in the laboratory. In practice what happens is that water vapor condenses and forms droplets on nuclei consisting of dust particles. All natural clouds are formed this way.

Q: Why is the flight path of a satellite orbiting around the earth elliptical instead of circular? ***Ed Bandick, Orange, Calif.***

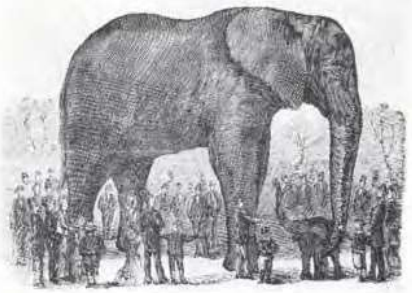
A: No orbit can be perfectly circular since the earth is not a true sphere but is somewhat pear-shaped. However, many satellites are in nearly circular orbits. The difficulty is that at any given altitude one and only one velocity will produce a circular orbit. It is nearly impossible for guidance systems to produce this exact speed. Still, they get close to it. Meteorological satellites have been placed in near circular orbits in order to photograph cloud cover from a distance of about 350 miles above the earth. When satellites are placed in elliptical orbits it is generally done for good reason. For example, Explorer XIV has an orbit ranging from 61,000 miles above the earth to 175 miles high. This spacecraft is investigating such things as the Van Allen radiation belt.

Q: Are there any groups which work actively for the reform of divorce laws? ***E. L. Evans, Philadelphia, Pa.***

A: Yes. One such group, active and growing, is United States Divorce Reform, Inc., 5809 Northgrove Way, Citrus Heights, Sacramento, Calif. The founder, Reuben T. Kidd, is aiming at a nationwide organization dedicated to easing the pressure of alimony and divorce laws that take away the rights of divorced men.

Q: Where did P. T. Barnum obtain his famous elephant, Jumbo? ***Thomas A. McClintic, Miami, Fla.***

Culver



A: Jumbo was for 25 years on exhibition at the Royal Zoological Gardens in London. Barnum bought the animal in 1882 for $10,000 and exhibited Jumbo in the United States for three years. In 1885 Jumbo was killed in a train accident. His skeleton is now on display at the American Museum of Natural History in New York.

Q: Who was the first person to climb Mt. McKinley? ***Lee Wolfe, Boulder, Colo.***

A: Mt. McKinley, in Alaska, is over 20,300 feet above sea level and is the highest peak in North America. Its summit was first reached in 1913 by a party of four led by Hudson Stuck, Archdeacon of the Yukon. The member of the group who first stood on the summit was Walter Harper, a 21-year-old half-breed and a native of Alaska.

Q: What is a pigeon fly? ***H. B. Emrick, West Palm Beach, Fla.***

A: This insect is a dangerous pest to keepers of pigeons. It lives on the pigeon, sucking its blood, and deposits larvae in the straw of the nests. It is slightly smaller than the ordinary house fly and is very lively. The fly is thought to have made its first appearance in this country in 1896 and now occurs in fair abundance throughout the southern states. Infestations can be eliminated by dusting with a 10 percent DDT powder.

Q: How many German prisoners of war were held in the U.S. during World War II? ***William A. McIntosh, Seattle, Wash.***

A: The peak number, 371,018, was reached on June 1, 1945.

Q: Do bats have any natural enemies? ***M. J. Benedict, Covington, Ohio***

A: The only enemies of the bat are hawks, owls, and snakes. Bats are beneficial animals and harmless to humans. Their food consists of night-flying insects, taken on the wing. A large proportion of their diet is mosquitoes and other injurious insects such as codling moths. Bats should not be killed. They can be eliminated from homes by using napthalene or paradichlorobenzine repellents. The fumes will drive out the bats but will not kill them.

Q: Who discovered the Gulf Stream? ***Ted Miller, San Miquel Allenda Gto., Mexico***

A: It was first observed in 1513 by Ponce de Leon.

Q: How is pemmican made? ***Ronald Grider, Indianapolis, Ind.***

A: Pemmican is a popular food with explorers and arctic travelers because it is easily carried and stored and furnishes a large amount of nourishment for its weight. It is made from lean meat, venison, bison or beef, sliced thin and either dried or smoked. The meat is pounded into a coarse powder and mixed with pounded dried fruits. Hot fat is added and kneaded into the powder until a doughy consistency is reached. The pemmican is then shaped into a loaf and wrapped tightly in skin or canvas. When properly made and kept dry pemmican will keep indefinitely regardless of climate.

Q: When did the Golden Gloves tournaments begin? ***Dick Newman, Rangely, Colo.***

A: This famous event for amateur boxers was first sponsored in 1927 by the New York *Daily News*. Originally it was limited to fighters from the New York metropolitan area but it spread to Chicago the following year and has since become national and international in scope.

Q: Is vodka made from potatoes? ***John Estes, Long Beach, Calif.***

A: Vodka was originally made in Russia from potatoes but in the United States it is usually distilled from grain. It is a highly refined and filtered liquor, distilled at or above 190 proof. It is not aged.

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Q: From what country did the most immigrants come to the United States? ***C. Schwartz, Vancouver, B. C.***

A: Of the 41 million immigrants to the U.S. since 1820 about 6.6 million came from Germany. Italy is second with 4.9 million and Ireland third with 4.7. In 1960 the leading foreign born group in this country was the Italians who numbered 4,544,000. Germans were second with 4,321,000.

Q: Is there a special name for a man who wears a beard? ***Timothy Wayne, New York, N. Y.***

Culver

SMITH BROTHERS

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A: The possessor of a beard is known as a pogonotrophist or one who cultivates face fur.

Q: Was desertion a big problem for George Washington's army in the American Revolution? ***E. C. Otloski, Flint, Mich.***

A: It certainly was. At one time Washington complained that "our army is shamefully reduced by desertion, and except the people in the country can be forced to give information when deserters return to their old neighborhoods, we shall be obliged to detach one half of the army to bring the other half back." Part of the reason for this was the large number of farmers in the army who would frequently depart, particularly at harvest time, to work on their land. Washington's army was never large. It reached its peak in 1776 when he had 89,661 men under arms or about three percent of the whole population.

Q: What proportion of the population of Ireland is Roman Catholic? ***Ralph O'Hara, Oakland, Calif.***

A: The Republic of Ireland has a population of 2,834,000, of whom 94.3 percent are Catholic. Northern Ireland, which is composed of six counties and is an integral part of the United Kingdom, is 34.4 percent Catholic.

Q: How long can a seal stay submerged? ***Clifford Shayne, Fort Worth, Tex.***

A: A seal can stay submerged for 20 minutes or more. During these prolonged dives the animal greatly reduces its oxygen consumption. As soon as it dives, its normal heartbeat of 150 a minute is reduced to 10 a minute. When the seal resurfaces the heartbeat immediately returns to normal. This means that during dives the animal's entire metabolism is reduced and very little oxygen from the blood is used.

Q: Is anyone besides President Abraham Lincoln buried in the Lincoln's tomb? ***Paul Blocker, Barberton, Ohio***

A: The Lincoln Memorial Monument, where Lincoln is buried, stands in Oak Ridge Cemetery, a mile north of the state capitol in Springfield, Ill. The tomb also contains the remains of Lincoln's wife, two children and one grandchild.

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Q: How did the custom of displaying eagles on tugboats get started? ***Henry D. E. Roebling, Fort Jackson, S. C.***

A: This was at one time a widespread practice and descended from a very ancient custom. In earliest days the primitive navigator did not trust himself alone. He wished the ship to have eyes and so he painted eyes on the bow of his ship. From this evolved the figurehead, placed on the prow of the ship. Tugboats, however, have to nose into the vessel they are helping to dock and so a figurehead on the prow was impossible. So the eagle on the pilot house resulted but this, too, is unfortunately giving way to progress. When powerful searchlights came into use they were placed where the eagle had been and the traditional eagle is disappearing.

Q: Is it true that during World War II wage increases for white collar workers were prohibited? ***G. H. Neidner, Louisville, Ky.***

A: Yes. On October 3, 1942, President Roosevelt issued an executive order giving control over wages to the War Labor Board and freezing wages for all workers at the September 15 level. The War Labor Board did not approve any wage increases except for those considered to be non-inflationary. This applied to white collar employees as well as to industrial workers.

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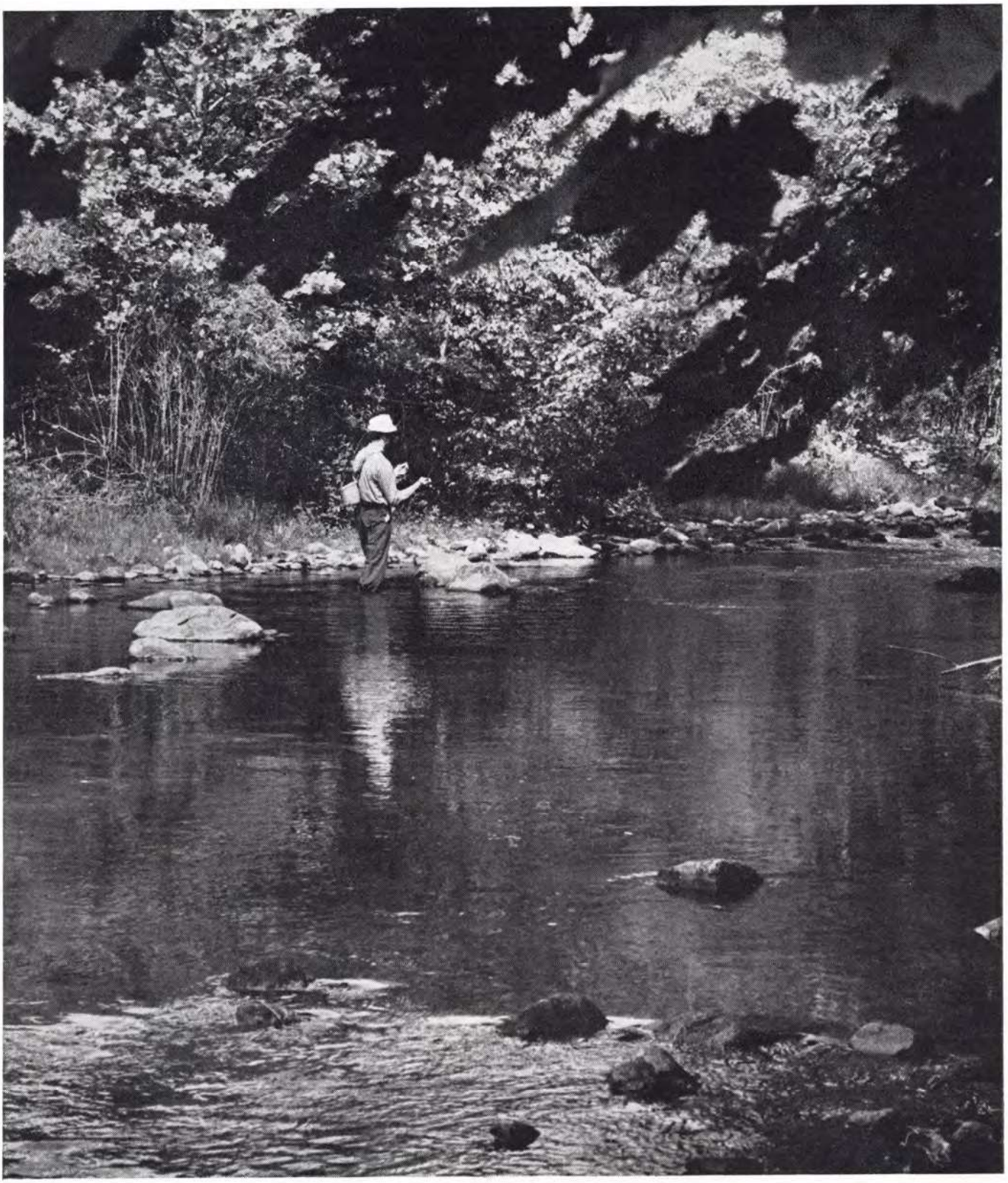

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[Continued from page 96]
many, so Rodatus' pleasure was amply justified. He sat himself down at the coffee table, threw away the dregs in the glasses, and poured himself a healthy slug. "Get yourselves glasses, lads, and sit down," he said to his assistants. It is conceivable, of course, that the glasses might have held fingerprints, but even a detective can't think of everything. "If we don't finish it," said Rodatus, smiling to his merry men, "someone else will."

Elfriede and Vogel looked on, scarcely able to believe what they saw. Suddenly Elfriede spotted a blue envelope on an occasional table, off to one side. Unseen by Vogel and the police, she picked it up and put it in her pocketbook.

Rodatus returned to police headquarters feeling no pain. "Suicide," he said—as best, at the moment, he could. He had failed to notice that Dr. Praun, now removed to the mortuary and awaiting burial, had been shot in the head not once, but twice. . . .

Now, months later, Gunther Praun and the district attorney summed up what was known of the case. They were not aware, of course, of the disappearing blue envelope, and they could not have guessed at the double head wound which Rodatus had so blithely overlooked. But still they had plenty to feed their separate anxieties. The drunken police party revealed a shocking dereliction of duty. Gunther Praun, going through his father's will, found no reference to the estate on the Costa Brava. No matter how rich one is, one does not overlook in his will a property worth $250,000! Who was the mysterious Dr. Schmitz whom Praun had gone to meet? Why had he not stepped forward when he heard about the suicide? What was the link, if any, between Dr. Schmitz, the Costa Brava estate, and Vera Brühne's grisly "murder party"?

This combination of incompetence and mystery was enough to enable Gunther Praun, the reluctant investigator, to demand action. One year after Praun's death his body was exhumed, in accordance with his wishes. Two bullet holes were found in his skull, making suicide almost impossible. The story was a front-page sensation in Germany, and one of the country's greatest murder hunts would soon begin. But what a murder hunt!

To begin with, the officer placed in charge was none other than Inspector Carl Rodatus himself, and his first suspicions were directed at, of all people, Gunther Praun. Young Praun was severely questioned about his father's will, and only reluctantly released. The next suspect was Elfriede Meyer. Praun had been a very shady character, the police argued. Who would know more about his nefarious affairs than his receptionist? Elfriede guarded her secret about the blue envelope and said nothing. The third suspect was Hans Vogel. After all, he was the man who had discovered the body.

Only after these interrogations had yielded nothing did the police turn their attention to Dr. Schmitz. Four months after the reopening of the case, an international search was ordered for the last man to see Praun alive. It ended in complete failure. Schmitz had apparently vanished from the face of the earth. The police had not the slightest clue who he was or what he looked like.

In time, Rodatus heard about Vera Brühne's murder party, and called at the apartment on Kaulbachstrasse. Vera was expecting him. "Just in time for coffee, Inspector," she said.

"Thank you," said Rodatus. He looked into Vera's smiling blue eyes, and took the coffee cup with nerveless fingers. Vera breathed deeply. Rodatus was hypnotized. "You must be terribly clever," said Vera. Rodatus was done for.

He acquired the agreeable habit of calling on Vera at coffee time, or when Vera was mixing drinks. He enjoyed relaxing in her easy chair, tinkling the ice in his glass, and going over the latest reports on the case with her. Vera would wear her most revealing blouses. "The case will soon be wrapped up," he promised early in his visits. "All the details are in there." He pointed to his briefcase.

"Really," Vera breathed. "I have never seen what police statements and evidence and so on look like. Can I look?"

"Help yourself," said Rodatus in the grand manner, and Vera happily burrowed through the evidence.

While Rodatus was so agreeably occupied on Kaulbachstrasse, there came a break at police headquarters, a confirmation of the existence of Dr. Schmitz. It derived not from police sources but from Praun's former receptionist, Elfriede Meyer, who decided she could now safely pass the blue envelope on to the authorities. Why Elfriede took the letter originally is one of the several marginal mysteries of the Praun case, and her own explanations were contradictory and confusing. It is likely that she herself did not know at the time, but aware of her employer's reputation with women and assuming the sex of the sender from the color of the envelope, she picked it up impulsively to protect him. Then, when Praun was declared a suicide, she decided it was unimportant, and later she was too frightened to give it up. In the end—and this is probably true—she said she did not know why she kept the letter.

At any rate it was not from a woman at all, but from Otto Praun himself, and he had sent it to his housekeeper Frau Kloo while he was on the Costa Brava. The letter was to introduce one Dr. Schmitz, who was then on his way to Pöcking. It asked Frau Kloo to "extend him all hospitality" and to "please serve Dr. Schmitz a repast."

This was odd. Elfriede had the impression when Dr. Praun left "to see a Dr. Schmitz" that he had never met the man before. Yet the letter suggested a somewhat more familiar relationship. The signature was examined and found to be a forgery.

Inspector Rodatus decided that the letter was unimportant, put it casually in his briefcase, and left to have a drink with Vera.

"Any progress?" she asked, handing him his glass.

"Nothing worth mentioning," he said. Vera took his briefcase and rummaged through it. By one of the hazards of fate she failed to find the blue envelope.

Typewriters were checked, and it was found that the letter had been written in Munich, not Spain. This narrowed the investigation considerably. After a week the typewriter itself was identified. It belonged to a student who rented a room from Vera Brühne—thus the finger of guilt pointed directly at her. On October 3, 1961 Vera was arrested by the sorrowful Rodatus and charged with murder. She was completely undisturbed and

TRUE

"Crepes suzette, again?"

laughingly protested her innocence.

She had good reason for confidence. Although the letter obviously established implication in Praun's death, it was the feeblest of circumstantial evidence. The forged signature was examined, and it was established that Vera had *not* written it. She had only a hazy alibi of her movements the morning of the murder, but there was no evidence whatever that she had been seen in Pöcking, a small, quiet place where a stranger as beautiful and striking as Vera would not quickly be forgotten. Nor was there any apparent motive. For Vera to kill Praun would seem to be killing the goose that laid the golden eggs.

Yet unknown to Vera, a ghastly justice was catching up—reversed, but otherwise not unlike that in Oscar Wilde's famous story, *The Picture of Dorian Gray*. Dorian remained young and handsome while the dissipations of his life were reflected in the portrait of himself which he kept in the attic. The hideousness of Vera's life, so it turned out, was reflected in her darling daughter Sylvia.

Sylvia, to put it mildly, had had an unconventional upbringing. She had shared in her mother's intimate parties. She had watched her mother operate as a call girl, and she had been sold by her mother into prostitution.

Vera, marked in her actions as a prostitute, was a narcissist and exhibitionist. As she enjoyed taking her clothes off, so she could not resist giving her dangerous and foolhardy "murder party." Having taken such pleasure in corrupting her daughter sexually, was it not logical that she should enjoy initiating Sylvia into even darker things? That, in fact, is what she had done, and on November 8 the Pandora's box was opened.

Sylvia blurted it all out. She confessed not only to the police but also to a reporter representing the newspaper *Abendzeitung* and the big weekly magazine, *Die Stern*. Her mother, she said, had told her everything. This is the dreadful tale which Sylvia unfolded.

It began during an air raid on Munich in 1944, when a construction laborer named Johann Ferbach saved Vera's life. Ferbach must have thought some goddess had come out of the ruins, to transport him into a compulsive carnal relationship which literally turned Ferbach into a slave, a zombie, a man without will of his own, obedient to all Vera's whims. He continued to haunt her background through both her brilliant marriages, through her career of prostitution, her liaison with Otto Praun.

Praun entered the picture in 1957. Vera was having tea with her friend Jo Müller Weigand when she saw Praun come in with Frau Kloo. Praun was tall, handsome, white-haired, with that air of omniscience and wisdom which comes as naturally to doctors as the taking of their fees. It was not so much Praun, however, as his companion who attracted Vera's admiring attention.

"Look at the rocks that woman is wearing," she said to Jo. "The man must be fantastically rich. Pity he's married." She sighed and thought no more about it.

By a coincidence, that same evening Vera and Jo were sitting together at a

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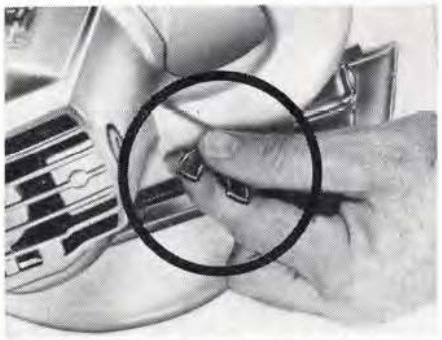

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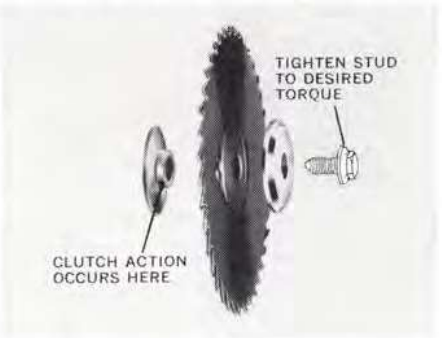

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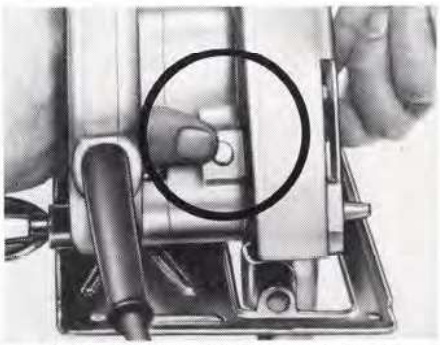

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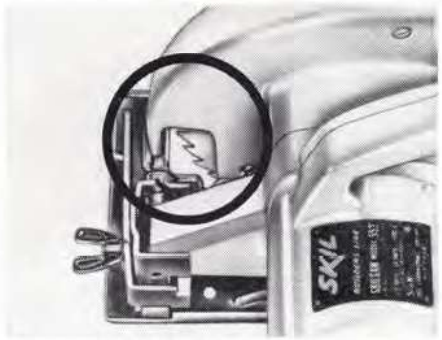

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sidewalk cafe in Schwabing when Praun again arrived with Frau Kloo. Praun, naturally, had noticed the two attractive women at tea-time, and the coincidence justified a smile of recognition on both sides. Leaving Frau Kloo quite openly—she was apparently not unused to such practices—Praun walked across and joined them, and they chatted.

"I shall pay the bill at my table," he said at last, "and then I shall drive you home in my Mercedes."

While he was gone, Vera exclaimed jubilantly, "That old goat isn't his wife! Imagine! I'm going to hook him for myself!" And with her Lorelei's eyes shining, she drew up her red-tipped fingers into the shape of a claw.

It was too easy. For the next three years the handsome doctor and the beautiful Vera were an attractive and familiar twosome in Munich life. They attended first nights and wore evening dress at orchestral concerts. Maîtres d'hotel snapped to attention when they arrived, and they were always seated at the best table. They bought expensive fancy-dress costumes for the *Faschingfest*: Pierrot and Columbine, Marc Antony and Cleopatra, Rhett Butler and Scarlett O'Hara. Under the laughing mask of comedy and the sorrowing mask of tragedy, the two lived the life which Munich offers supremely well, a life of escape, sex and license.

In 1959 Praun gave Vera a present worth a quarter of a million dollars. "I am changing my will," he told her casually while they sat at lunch in the Walterspiel Restaurant, "and I am leaving you my estate on the Costa Brava."

Even the cool and collected Vera was overwhelmed by the generosity of the gift. She soared to the stars. Some time later Praun proved his good faith by showing her the redrawn will, duly witnessed. But there was a snag to the gift which Vera, in her pride, had overlooked—Otto Praun's notorious inconstancy with women. Vera was clever, but how could she know that bequeathing the Costa Brava property to his chosen blonde of the moment was a Praun habit. When he tired of a love he simply changed his will again. It was really quite a cheap gift, but it always impressed the girls.

As inevitably as human nature itself, Vera's turn arrived. Praun was bored with her, and he wanted his property back. He told her, "I am going to sell the entire property and buy an estate next year somewhere else. Perhaps in Lugano in Switzerland, where there are more Germans to talk to."

Vera had been living in the dreams of her castle in Spain, and the blow was a cruel one. Nor was the significance of it lost on her. She continued to be seen with Praun while she formulated her plans. At last she asked innocently, "Darling, if I find you a buyer for the property, would you let me have the commission?"

"Of course," said Praun, delighted to have been let off the hook so easily. He had overlooked a vital fact: Vera was just as unscrupulous and ruthless as he. In removing Vera's glorious future he had signed his own death warrant. From that moment on he was as good as murdered.

Vera drove a second-hand Volkswagen to Cologne, where Johann Ferbach was working as a laborer. She had a project to discuss which would test even Ferbach's doglike fidelity, so she brought along rich gifts. She gave him the Volkswagen and a mink cape which she had stolen from Jo Müller Weigand. She told him to sell the cape and keep the money. She also promised him a future of unbelievable bliss with her, Vera, all to himself, in Spain.

Returning to Munich, she told Praun she had found a Dr. Schmitz who was interested in buying the property.

It all fell perfectly into place. Ferbach as "Dr. Schmitz" drove to Pöcking. The forged letter insured that Frau Kloo would go into the kitchen, in a remote part of the house, to prepare "a repast." Ferbach had been briefed on where to find Praun's revolver; he took it and, at his leisure, shot the woman. When Praun arrived, he shot him, too. Afterward he arranged the murder carefully to look like suicide, and departed. It would have been a perfect murder but for one thing. Ferbach forgot to recover the blue letter which he had typed and forged, and later, when he realized it, he was too frightened to go back.

All this and more was related with relish by Sylvia Possy, who was thrilled to find herself a celebrity, with her pretty, Lolita-like pout on the covers of all the big German weeklies.

The trial, in June, 1962, was a sensation. The court was packed every day, and thousands waited for a glimpse of the principal characters. The respectable citizens of Munich read with a fascinated horror the details of the decadence of Vera's life and of the society in which she moved. The story of her escapade in the wardrobe with Jo Müller Weigand, watching the child of one initiate the child of the other not to love but to sex, was especially titillating evidence, although Jo, in the witness box, denied the whole incident. It was also stated in court that Vera once stole a wallet containing $100 from a "client," locked him out of her apartment, and refused to return the money. Cloudy implications of homosexuality surrounded Vera's relations not only with Jo, but with several other women. Whore, Lesbian, corrupter of her own daughter, and murderess: the book was thrown at Vera Brühne. It was an astonishing chronicle of corruption in smart circles. On Praun's level, strange tales were told of his sexual abberations and of the mystery of his wealth. There was irony in the revelation that Praun had not really left Vera any Costa Brava property in the first place. And cruel comedy showed its grotesque face in the announcement that the hapless Inspector Rodatus had had a nervous collapse, and was unable to testify.

Every evening, police squads had to hold back women waiting for the Black Maria which carried Vera from the court back to her jail cell. When they saw it they spat at her, beat the sides with their umbrellas, screamed, "Hang her! Hang her!" Such was the mood of the country.

Arguments about the rights and wrongs of the case waged furiously over coffee cups and beer tankards all over Germany. Nobody bothered about Ferbach. He had murdered Praun and Kloo, and that was that. He would go to jail for life, there being no capital punishment in the German constitution. But the extent of the culpability of Vera Brühne exercised the whole nation. Respectable Germany condemned her and wanted her blood. Bohemian Schwabing felt otherwise.

Vera did not help her own cause. She flirted idiotically with the guards, simpered, and every now and then shed tears of such obviously crocodilic viscosity that they fooled no one. But her lawyers put up a brilliant fight. They put Sylvia in the box and she retracted everything she had said. Psychiatric evi-

dence was called to prove that Sylvia was "totally irresponsible." The defense drew attention to Praun's shady record, and suggested that if he were, in fact, engaged in narcotics peddling, it was more than likely that he was a victim of gang justice. Ferbach, on his own behalf, simply said he was in Cologne all the time, but had been on a drunken spree for three days and could not recall his movements. After 130 witnesses had given evidence for seven weeks, the jury and the judges retired. Betting in Munich was 50-50 that Vera would get off completely. If not, the general expectation was that she would be sentenced to anything from two to five years.

The deliberations ended after six days. TV and movie cameras were set up in court to record the historic verdict. Thousands crowded the streets outside. Space was found in the courtroom for Dr. Gunther Praun and his bride of two weeks so that they could both witness the final ordeal of his father's mistress. Vera herself clearly had premonitions of disaster. Her aplomb was gone. Handcuffed, her eyes red from weeping, she reeled down the gantlet of women spitting at her and screaming "Murderess!" in her face.

Amid fantastic scenes of tumult both Vera and Ferbach were found guilty, sentenced to prison for life, and ordered to pay the costs of the trial, some $75,000. Vera's despairing wail, "Oh, please, I'm not guilty," was drowned in yells of "Shameful verdict!" and "Serve the bitch right!" Police had to break up a flurry of fistfights between pro-Vera and anti-Vera spectators.

The arguments continued late into the night. At the Hofbraühaus, the great Munich beer hall, over vast gallon steins of beer, the burghers in their *lederhosen*, green peasant jackets and Tyrolean hats generally agreed that the verdict was a good thing, and that Vera Brühne had got what was coming to her. The Hofbraühaus smells strongly of beer, sausages and urine. At Chez Heinz, which smells of Balenciaga's Le Dix and Havana cigars, Munich socialites declared it was an act of pure sadism which would make the name of Vera Brühne live in history beside that of the Comtesse de la Motte, who, in the affair of Marie Antoinette's necklace, had also been tossed to the mob to satisfy special interests.

But the verdict was final and there could be no appeal. Vera Brühne will be a very old woman when she comes out of prison, if she comes out at all in her lifetime. But Vera, a national sensation in June, was forgotten by October. For after all, summer vacations were coming, and smart Münchners were getting ready to pack their skin-diving equipment into their Mercedes and Borgwards and head for the Italian Riviera—and the Costa Brava of Spain. After that would come the *Oktoberfest*, with its wild parties, its beer flowing, its couples making love in the corners of nightclubs, amid the noise and the exuberance which make Munich the city it is. Who then will have a thought to spare for the lonely, aging woman in the Ettstrasse Jail?

—Geoffrey Bocca

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Death Trap for a Blind Man

[*Continued from page* 47]

reached out to grab his friend, but Williams twisted away, and ran for their cabin in the nearby trees. Already the Indians were halfway across the meadow, strung out in a ragged line. Crandall, wasting no time in lighting out in the opposite direction, knew with sickening certainty what was going to happen. At the edge of the woods he turned and watched.

Williams was 50 feet from the cabin when an Indian, racing in front of the others, dropped to one knee and brought him down with an arrow in the leg. Williams struggled to rise, but before he could another Indian drove a tomahawk through his skull.

Crandall plunged into the woods, heading north, doubling back and forth between the pines, reckless of the branches that whipped against his face. He was young and strong, and noted in the West as a powerful runner, but never in all his years had he run as he did now. He kept running, slowing only when the yells of pursuit faded in the distance. He had to save his strength. It was a long way to safety. That is, if he made it. . . .

Suddenly he heard the Indians again. Crandall ran harder; dashing well over a mile before he leaned against a rock, gasping for breath. A cold wind whistled in the branches over his head. He shivered, and hunched closer to the ground. He could hear the Indians all right. He cursed himself for having left his rifle in the cabin that morning. Well, he thought savagely, he still had his knife. He dropped his hand to his side, reaching for it, but felt only a broken rawhide thong. He looked around wildly.

"It's gone . . . It's gone." Then he remembered having smashed his hip against a broken branch. Too far back. He staggered to his feet and lurched onward, cold, hunted and unarmed.

A mile, five miles, Crandall clocked off the distance in his woodsman's mind. He was running north, along the western edge of the biggest spur of the Buffalo Hump Mountains, in whose jumbled reaches he'd found his gold. As he ran, he became aware of a roaring in his head and a pain behind his eyes. Each step sent a jolt through his skull.

He paused, sagging against the deeply seamed trunk of a yellow pine. The sound in his head was more thunderous than ever. His eyes roved back along his trail, saw the scuffed footprints left where his moccasined feet had tossed aside the long needles covering the ground, each one of them a pool of shadow in the low winter sunlight. Crandall grimaced bitterly. A trail you could follow at a dead run. How close were they now? How much had he gained on them in his headlong rush? The forest was silent, except for the high swish of the pines, but the Indians could be there, closing in.

Crandall made himself start running again. If only he hadn't let his greed bring him back here in the first place . . . If he hadn't left his rifle in the shack. . . .

Crandall came out of the yellow pines. Ahead of him lay a narrow strip of open grass, forming the bottom of a saddle between the ridge he was running on and the next one, which dropped sharply off to the west. Crandall legged it across the grass, still heading north. When he reached the woods on the other side he turned and saw the Indians breaking out of the pines. Crandall plunged into a mass of fir that went all the way to the top of the ridge.

He was breathing raggedly now. Each gasp of the cold mountain air seared his throat, and his stomach was hollow with exhaustion. But he jerked himself onward, not thinking beyond the next step, the next rock. He couldn't hear the Indians, but he knew they were there. And the way the blood was roaring in his head, he didn't know if he'd hear them 20 feet away.

Crawling, running, climbing, falling, Crandall made the top of the ridge. His clothes were torn, his hands and face bloody, his body shaking from exhaustion. His mouth was dry and cracking. But worst of all was that fiery pain in his eyes.

As he came out on the top he hit an open space where the trees had been unable to find footing on a shoulder of gray granite. To the west he saw the land falling away toward the great canyon of the Snake River. To his right, in the east, the Clearwater River was also sweeping along, heading for its junction with the Snake, more than a hundred miles north. Where those two rivers came together was Fort Lapwai, the nearest refuge. Crandall surveyed the land with misgivings. His path between the two rivers would take him across long, grueling stretches of some of the wildest country in the West. It was a 100-mile jumble of ridges and canyons, valleys and mountains. Most of the way was either uphill or downhill—country that could tear a man to pieces. The Indians didn't have it any easier, however. It was a good thing the packhorse he and Williams had used to bring in their supplies had been killed by a marauding bear a couple of weeks ago, or the Indians would have him now and would run him down in nothing flat.

Crandall figured he knew this country even better than the Indians did. Every spring, stream and canyon was familiar to him. He'd been trapping it for five years now. Game was here in abundance. Enough fur to procure a year's ammunition could be taken in a few months' trapping. But now, standing on that ridge, he felt like an outcast from this land he had called his own. When he came for gold he had become its enemy. For where gold was found, the white men came, tearing up the earth, slashing the timber, driving away the game and fouling the streams.

That was why the Indians were chasing him, and why they'd never give up. These mountains had always been country where they could roam as they pleased. It was a powerful motive for hate, and would give speed to their feet.

TRUE

"It sounds to me more like the roar of a hotel guest who has just received his bill."

But his own motive—sheer survival—was even stronger.

All this passed through Crandall's mind in an instant, as he paused on the top of the ridge. Before he moved on, he made a silent vow, promising himself, the land and the avenging Indians that, if he lived, he would never return for the gold. Maybe someone else would find it, but he would have nothing to do with it. He ran down the other side of the ridge, heading toward a stream at the bottom.

Darkness was falling when he reached it. Dropping to his knees, he scooped up the cold water in his hands and gulped it greedily. But after a few swallows he retched painfully. Rolling over on his back, he looked at the sky. The moon would be full tonight, shedding bright light on the mountains. Crandall's eyes moved to the west, but the horizon was bare and clean. No sign of clouds moving in with the cold wind that was still blowing.

Grimly, Crandall weighed his chances. What would the Indians be figuring? He estimated that he'd gained a couple of miles on them this day. Enough to worry them and keep them pushing on into the night. But if he kept on at night, tomorrow he'd be a sitting duck. They had food. He didn't. A margin like that would make a big difference. Sleep, he had to have sleep.

Crandall shook his head. He couldn't sleep, not if the moon stayed bright. He stumbled to his feet and moved on, following the stream. His trapper's eye noticed the signs of beaver workings—chewed sticks, and out in the water a few domes of sticks and mud. If he'd stuck to trapping he wouldn't be in this jam now, Crandall thought guiltily.

He didn't know how long he'd been walking when he realized the ground around him was dark. He couldn't see more than a few feet in any direction. He looked up. Clouds! Already the moon was blotted out by a heavy mass of black clouds coming in from the south. Even as he watched they spread across half the sky, wiping out the stars.

With the darkness came a warm, wet wind, then a few drops of rain. Rain in November? Snow would be more like it. Crandall took a breath, and smelled wet earth, then a gust of wind, accompanied by a heavy spatter of rain, threw him off balance. In seconds he was wet to the skin, but unmindful of how cold he was, he turned his face to the sky and cried out in exultation. This was no night for tracking anybody!

The thought gave him fresh strength. He wouldn't rest right away. The rain would wash out his footprints. Crandall started moving, feeling his way back up the slope. Soon the stream was far below him. He kept going for an hour before he let himself stop, pulling his body in under the sheltering branches of a spruce. He dropped instantly into a deep sleep that was unbroken until dawn. When he woke, the storm had gone as freakishly as it had come. Again the wind came from the northwest. Only the wet earth and a few clouds scattered across the sky gave indication of last night's fury.

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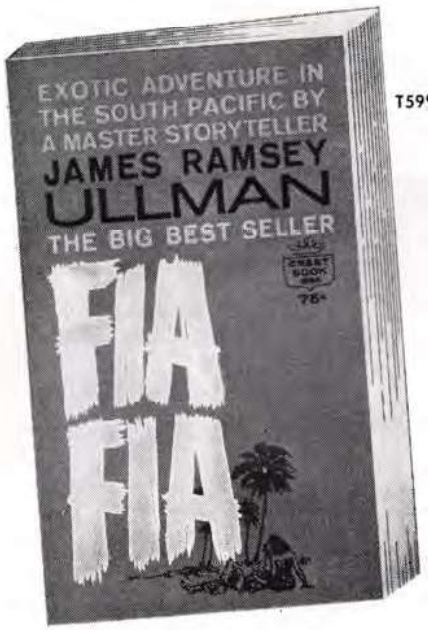

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The few miles he'd gained on his pursuers during the storm kept him safe through the morning, as he kept moving, always at the fastest speed he could manage. He'd walk a few miles briskly, then trot a couple more, until his breath gave out. Sometimes he could muster no more than a slow walk. Always there was the gasping of his lungs, pounding of his heart, and hammering pain in his eyes.

Noon came. He hadn't eaten now in more than 24 hours, but he was used to short rations. If you didn't think about it, hunger wasn't too bad. But the pain in his eyes maddened him. Something told him that the exertion was injuring him. But if he stopped the Indians would get him. He shook off his thoughts about the pain. He was being ridiculous. How could running hurt his eyes?

Late in the afternoon, moving across a meadow between two mountains, he felt a chill of apprehension. He looked back. The Indians were silhouetted against the sky on the next to the last ridge. Suddenly they moved into a stand of pines and were gone. They were on his trail for certain now. In two or three hours they'd be up with him.

Crandall ran straight ahead, purposely leaving an easy trail. In a mile he began a swing to the left, up a slope. Now he made it look like he was trying to hide his trail. Gradually Crandall ran in a rough circle about four miles around, doubling back to his trail.

When he arrived at it, he carefully crossed to the east of his original trail, which led due north. Moving very carefully, not leaving a trace, he moved toward a hiding place he'd spotted. Not 20 feet from his circle's completion tree branches crowded down over a crevice in a rock. What he had planned was risky as hell, but if it worked he'd get some rest, and start the night with a good lead on his pursuers.

The Indians came an hour before sunset. They passed Crandall's hiding-place, and for the first time he counted them. Twenty-three, all armed with bows and tomahawks. Their leader, a tall, hawk-nosed warrior with a scarred face, had a rifle. Crandall felt a thrill of anger when he saw it. He recognized that Spencer .56-50 all too well. He'd bought it back in '65, the year it went on the market. The Indian had picked it up at the cabin.

The Indians were past, but Crandall didn't move. He lay on the ground and waited. The Indians should be back at sunset. He had an hour of rest coming to him before they came again. Then he'd have to move and move fast.

As the sun crept lower, Crandall scanned the sky. There was no hope tonight would see another storm like last night's. Whatever trail he left would be there to follow.

In the cloudless sky the sunset was unspectacular. The air turned gold, then rose, and suddenly the sun was gone, leaving blue twilight. Crandall heard the Indians coming.

Their leader, Crandall's rifle held high, brought them to a stop. Crandall could understand a little of the Blackfoot language, and what he heard brought a smile to his lips. They were thinking like he'd known they would. It was a common trick of people being pursued to make a circle and then lose their tracks in among those of the hunters.

The white man had gone either north or south on the Indians' own trail, they were saying. If they cast about in the woods on either side, they'd find where he struck off on his own again.

At a signal, the Indians split into two groups. One went north and the other south. Crandall lay still. An Indian warrior, scanning the ground closely, passed by his covert, saw nothing to excite his attention, and passed on.

In 10 minutes the Indians were out of sight. Crandall stood up and carefully walked west, along the last arc of his circle. In a quarter of a mile he angled off it, to the left, leaving little sign of his passage.

Crandall broke into a slow run, moving up the mountain slope. Darkness was falling rapidly now. By the time the Indians had followed the circle all the way around again and found where he'd left it, there would be only the tricky light of the moon to track him by. He'd have a good lead. If he could only keep moving. . . .

Crandall was aware enough to know where he was and what was happening, but the unreality and the pain in his eyes remained to torment him. While one part of his mind grimly forced him to keep putting one leg in front of the other, another part was whispering to him to lie down, saying that the Indians had all gone away now and he was safe.

But Crandall didn't lie down. Something kept him moving. Once, as he topped a ridge and saw the almost full moon leering at him from overhead, he realized that for what must have been an hour he hadn't taken note of anything. He looked at the slope behind him. He remembered approaching it, but after that he could recall nothing until this moment.

The rest of that night was a welter of pain and exhaustion. Crandall plunged across icy streams and the near-freezing water chilled him to the bone. He fell and got up again. He clambered across rock and doggedly pushed through thick stands of timber. Anything to obliterate his trail, to gain a few more precious moments. Hunger clutched at his belly. The pain in his head stabbed at him mercilessly.

The climbing sun didn't bring much warmth, but Crandall was grateful for it. Sometimes he had rare moments of lucidity, and would try to run faster, but always the pain in his eyes drove his mind back, and then he would move along more slowly, dragging his body as if it were a dead weight.

"Run faster, faster!" he ordered himself desperately. Then it happened. At first Crandall thought he'd been hit by a bullet, so sudden was the force that smashed him to the ground. He lay for a moment, then staggered to his feet. The thing hit him again. Again he stood up, feeling dizzy, looking around wildly. It was strangely dark. Crouching on all fours, he peered around, a numbing horror clawing at his mind. It was black all over . . . black. Pitch black.

"You're peeved about something . . . . I can tell!"

A cry rose in his throat as he realized the truth. He was blind. *Blind*. The roaring and the pain in his head . . . the strange sensation when he was running . . . something happening inside his head.

Crandall rubbed his eyes, as if to restore his vision. The darkness stayed. He fought back panic. Maybe it was something that would pass. He'd get his sight back. Just rest a minute. Trembling, he lay down. Nothing happened. He was still blind.

A curious calm came over him. He'd forgotten his hunters in the minutes just past. Now it came to him that he was sitting out in the open, in plain sight. Maybe the Blackfeet were coming, had seen him already. He began to feel the ground around him and his hand closed on a rock. Then he felt, rather than heard, the sound. They were coming already. They had seen him then.

His grip on the rock tightened desperately. They wouldn't take him alive. He'd fight them to the end.

Closer now. He needed no acute sense of hearing to know they were closing in around him. They had no reason for caution, not when they had him trapped and helpless. He braced himself for their wild yells of triumph.

The sound, when it came, brought the blind man scrambling to his knees in incredulous wonder. It was a voice saying in an Irish brogue. "What's the matter with ye?"

Hysterical laughter broke from Crandall's lips. "Where are you from?" he asked at last, knowing the answer.

"Fort Lapwai. Come, man, what's wrong?"

"I'm . . . I'm blind!"

The Irishman swore softly. "Here, tend to this man!"

Crandall felt himself lifted by two men. He'd been found, rescued, saved by a detachment of soldiers!

In halting sentences between gulps of food, Crandall told them his story.

"How far are we from the Fort?" he asked when he was finished.

"I don't know," the Irishman said quietly. "You see, we're lost!"

Now it was Crandall's turn to listen to their story. They'd left Fort Lapwai, 21 strong, in pursuit of some renegade Bannock Indians. Their Indian guides had deserted, and the one soldier who knew the terrain had been killed in a skirmish with the Bannocks. Their supplies were low—for days they'd been on half rations. Hunting was poor. They had only six horses and two mules left.

For a long time Crandall sat silently, trying to take in the meaning of what he'd heard. The weary, hungry troops couldn't go on much longer. If they didn't starve, they'd fall prey to the Blackfeet who probably had spotted them already, and who would trail them, waiting like buzzards to strike when the men were sufficiently weakened. Then there was his blindness, almost forgotten in the moments of excitement. Maybe they could do something for him at the military hospital in the Fort—if he could get there soon enough.

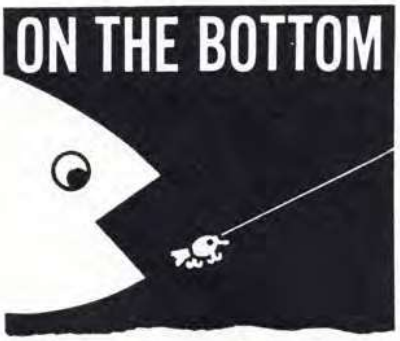
"How far do you *think* we are from Fort Lapwai?"

"I don't know," the yet unnamed voice said wearily. "You know the land. How far do you think?"

Crandall thought back. He'd run three days and two nights. But he couldn't remember the last hours, nor where he'd been headed. For all he knew he'd been running away from the Fort.

"Anywhere from 40 to 70 miles," he said. "You must be new at the Fort," he added. "I don't remember your voice."

ON THE BOTTOM



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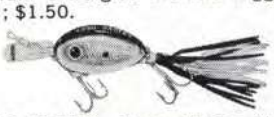

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"Aye. Sergeant O'Meara if ye please. Me and my men just got transferred from Colorado a few weeks ago. We're used to mountains, but this place. . . ."

"One thing's sure, the Fort's north of us."

"And don't I know that? We've been trying to move north for days now. But this country is impossible! Yesterday we ran into three deep canyons cutting across our path. Allowing for the detours we made to get around them, I don't think we made more than about five miles."

A vivid memory burst into Crandall's mind. "Three canyons, you say! Was there a high ridge with a burnt-out scar to the east of the third one?"

"That there was!" O'Meara yelled. "Ye know where we are then?"

Crandall nodded. "Trapped the stream above that canyon last year. It's about 50 miles from here to the Fort."

"Where do we go from here?" O'Meara asked hoarsely.

Crandall could hear the other men in the detachment gathering around, could almost feel the hope welling in their hearts. For long moments he was unable to speak, as the full irony of his situation seared through his mind. For three days and two nights he'd kept ahead of the Indians, until blindness had come to make flight impossible. And then to be "rescued"—the word was a mockery—by a contingent of lost soldiers! A sob broke from his lips as he realized that he, exhausted, racked with pain, and blind, had to lead his own rescuers to safety. It was impossible! When Crandall answered, his voice was choked with the feeling of hopelessness that had swept through him.

"The Fort's northwest, but we go east. North of us right now for 20 miles is a tangle of canyons and mountains like you've never seen before. We've got to go around it."

The effort of thinking and talking was too much for him, and he sagged to the ground. He was half-conscious of being lifted, and then he remembered nothing for a while. Once he awakened enough to realize that he was slung on a blanket between two mules. He couldn't see them, but the smell was plain enough.

The next time he awakened, it was to sit up and scream, "The Indians! Look out for Indians."

He felt hands moving over his face, hands holding a wet cloth.

"Take it easy, man," came the deep voice of O'Meara. "It's night now. We've stopped."

"Got sentries posted? Indians out there."

"Everything's in order. Try to sleep."

Crandall slept. In the morning he felt better. But he was still blind. His unspoken hope that rest would bring back his eyesight died before it was fully born. Again he was slung between the two mules. O'Meara came and put a big hand on his shoulder.

"We went east yesterday, like you said. Skirted around the mountains. We're headed northwest again. Is that right?"

"Yes. Go northwest. See that line of mountains up ahead?" Crandall himself could almost see them, a rolling line of green trees and gray rock.

"I see 'em."

"When you get to them, go right through the middle. It'll look easier to the left. But there's a natural hidden pass through the middle."

The next day the air moving against Crandall's face was heavier and wetter.

"O'Meara!" he called. "What's the sky look like?"

"Gray," came the reply. "But up in the north it's got sort of a green tinge, you might say."

"It's going to snow, and snow hard," Crandall said. "Feels to me like late today."

"We'll be there before that," O'Meara said cheerfully.

Crandall didn't answer. He was thinking about the last tangle of mountains between them and the Fort. It was pretty tricky. The slightest miscalculation as to route could get them killed. Crandall shuddered as he remembered the way a November storm could land feet-first on this mountain country, obliterating all landmarks.

It was late in the afternoon when they hit the mountains. Crandall frowned. They were behind schedule. Now there was an ominous wind blowing.

"You should come to a stream," Crandall said. "Cross it and run along the ridge, and you'll hit kind of a trail."

Shortly after that, Crandall heard the roaring of a stream, and smiled. Then they splashed across. Getting close now. They just might make it.

Suddenly Crandall sensed that something was wrong. He *felt* lost.

"Sergeant!" he yelled. "Stop and tell me as much as you can about where we are."

The mules stopped. "We're on a ridge, big boulders down on the left, looks like a slide area."

Crandall nodded. That jibed, but he still felt lost. "Go on." His teeth clenched as he awaited O'Meara's answer. He was used to following the trail. He had an exact picture in his mind of every tree where he turned. But would O'Meara describe anything he remembered?

"Up to the right there's a big forked tree, struck by lightning it looks like."

That was funny. Crandall didn't remember a tree like that. But maybe he'd used another landmark.

"Then there's an almost square boulder with a white line of quartz running through it, right on the ridge's top."

Crandall hesitated, trying to call to his mind a picture of this rock. A boulder? Try as he might, he couldn't remember any rock like that. Desperately he wished for his sight. Just one minute and he'd know right where they were. Then Crandall remembered, and a feeling of horror went through him.

"Sergeant!" he cried. "How long until night?"

"Couple of hours. It's starting to snow a little."

Crandall felt small hard flakes hitting his face. "Turn around, go back down the ridge," he said numbly. "I forgot. There were two streams. This is the first. We want the ridge past the second."

As the weary caravan retraced its steps, Crandall berated himself bitterly. His

blindness was no excuse for forgetting the existence of the two streams. The air was deadly still, and the snow was falling faster and faster. Crandall, dragging his hand for a moment, felt that there was already about half an inch on the ground. With night coming. . . .

They crossed the second stream, followed the ridge. O'Meara, calling out the landmarks, had more and more trouble seeing them. Crandall knew darkness was almost upon them. In his mind he visualized the trail to the Fort. They weren't more than 10 miles away now. All they had to do was swing around the end of a spur of mountains, go along them on the other side, and they'd be there. This hopeful line of thought was abruptly broken as Crandall felt himself lurch to a halt.

"Can't see," O'Meara said. "Too dark. Too much snow."

As if to emphasize these words, a gust of wind howled along the ridge whipping a stinging shower of snow against Crandall's face.

What should they do? O'Meara was in command, but Crandall knew that the real responsibility lay with him. Stop for the night? That was out of the question. This storm was going to keep on through tomorrow, and maybe the next day too, for that matter. It would be no easier than it was now. And Crandall could hear men coughing out there in the darkness. They couldn't stay here in the snow for days. Anyway, they didn't have any food. But how could they go on? The wind was gusting from every direction, the straight flow of the storm broken up into a thousand fragments by the jumbled mountains all around.

Hell, Crandall thought, even if he could see he wouldn't be able to make it. Blind he didn't stand a chance. And now he wasn't the only blind one. Night and the storm had made the others blind too.

Startled, Crandall raised his head. Blind men go by feel! Maybe they couldn't see, but. . . .

"O'Meara!" Crandall shouted. "The ground slopes up to our right, doesn't it?"

Not waiting for an answer, he blurted out his wild idea. This ridge they were now moving along paralleled the Clearwater River, which wasn't many miles to the north, pouring westerly to join the Snake. If they tried to go leftward around the mountain mass and follow the usual trail into Fort Lapwai, which went over comparatively flat country, chances were they'd get lost by veering off, getting farther from the Fort with each step.

But the lay of the land could direct them now. On the other side of this ridge, all the streams flowed into the Clearwater. They could feel their way up the ridge —didn't have to see to know you were going up, did you?—and then feel their way down it, until they'd hit a stream. The stream would take them to the Clearwater, and the river would take them to the Fort!

Yelling wildly, the band of soldiers started up the mountain. Winds grabbed at them, pitfalls hidden in the snow tripped them up. They fell, and cursed and got up again, lurching, sliding, pulling and jerking themselves along. At Crandall's orders, they abandoned their rifles and packs—even the horses and mules.

Up they went and up, feeling their way over rock and through pine forests. Crandall insisted on walking himself. He was no blinder than the rest of them, was he? Tie everybody together with rope and nobody'd get lost. Frozen fingers fumbled with icy ropes, but in a few minutes they were all tied together.

They came to the top of the ridge. It must have been the top, because the wind blew uninterrupted into their faces from one steady angle. And there was no up left to go.

Then they went down. This was harder. Crandall lost count of how many times he'd fallen, of how many times the jolt as someone else fell came to him through the rope.

Sudden, icy pain shot through his legs when he half-slid down a steep bank. Water! He'd hit water! Now they had a stream to follow! What did it matter that its banks were cluttered with rock, and that a hundred times they found themselves knee-deep, waist-deep in cold water? They had a direction to take. They were going to live!

Early in the morning, 20 half-dead soldiers, led by a blind man, entered the gates of Fort Lapwai. As Crandall collapsed into the arms of an Army doctor, there was a faint smile on his face. It would have been bigger, but he was just too tired.

When they told the story of how big Lou Crandall had outwitted and outlasted Indians, hunger, pain, exhaustion, cold, snow and his own blindness, the men of the West had an almost unbelievable postscript to add to it. Crandall not only lived, but, a little while after he was back at the Fort, his sight returned. No one knows what caused his blindness, or what restored his sight. The most likely explanation is that Crandall suffered a minor stroke that temporarily affected the optic nerve.

Alive and hearty, Crandall moved around the West, eventually settling in Colorado. Never again did he transgress against the land by going in search of gold. As for the gold he'd already found, Crandall kept the pact he'd made with himself never to tell. He would do nothing to change his mountain country. Let it stay free.

But the land did change. Thirty years later, in 1898, news of a gold strike in the Buffalo Hump Mountains reached Crandall. They'd found his gold. Even then he kept his vow and never went back to take any of the treasure.

As the towns advanced, Crandall retreated deeper and deeper into the mountains. There was always a higher peak, a more distant range. Until his death, at the beginning of the 20th century, Lou Crandall, a mountain man out of his time, lived in the mountains, taking from the land only what he needed to live on, made more keenly aware of the majesty of his domain by his memory of those terrible days when he had undergone his black ordeal in the wilderness.

—Norman Carlisle

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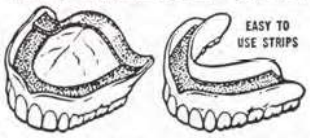

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The Almost Instant Millionaire

[*Continued from page 26*]

can enter his deals, he has made millionaires of 20 or more employees and wealthy men of many more. Yet the feeling his men have for him goes a bit beyond money. They admire and respect him—and probably are a little afraid of him.

In at least one, Administrative Assistant Lawson, this feeling approaches worship. Lawson, an amiable former sportswriter who met Ling through golf, seems strangely mismatched with his dynamic, brilliant boss. His chief value seems to be his utter loyalty and the fact that with him, as perhaps with no other man, Ling appears able to relax. Lawson, discussing Ling, is capable of getting tears in his eyes, which is some ways further than most Ling employees go.

At 7:30 every working morning Lawson pulls up at Ling's house, Ling bounds out, leaps into the front seat and they roll swiftly across the still not active city. They may go to ESI, Ling's investment house, or downtown to his National Bank of Commerce, but sooner or later they wind up at the huge hangar on the outskirts of Dallas where lies the industrial giant now known as Ling-Temco-Vought.

There has been casual conversation on the way—a small ranch he may buy so his boys can learn about work, the abnormalities of a group of backwoods Oklahomans he once encountered—but now Ling is surcharged with energy and his control has tightened until he burns with a cutting torch's concentrated flame. He sits bolt upright at his big black desk in his somber dark-paneled office and in a matter of 15 minutes plows through a pile several inches deep of letters, reports, clippings, documents. He pens a few words of instruction atop some and calls in his secretary to dictate answers to others. He dictates in a low, even voice at exact dictation speed, usually a sentence or two to a letter, moving without pause from one to the next in an instantaneous shifting of mental gears. There is a cat-like quality to his motions. He picks up the phone with a snap, opens conversations without greetings, closes them without farewells, leaves much unsaid and expects his employees to grasp his meaning.

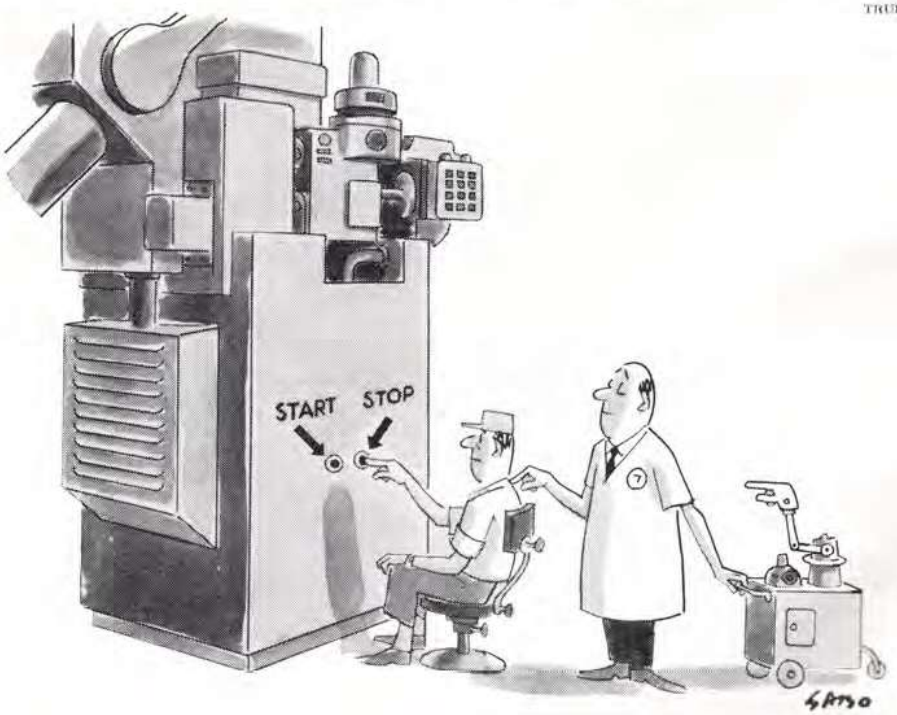
Thus he sits, fully focused, monitoring the financial health of Ling-Temco-Vought with its annual sales of more than $300 million. And it is this efficiency, this honed down utilization of time, minute by minute, which permits him to run all his other interests so well.

His current favorite among these appears at the moment to be Electro-Science Investors, through which he invests money in small electronic firms, then gives them the same treatment which built Ling-Temco-Vought. He owns good pieces of various other firms and he and a fellow millionaire in Dallas operate the small but rapidly growing National Bank of Commerce. He is throwing up a 31-story office building to be known as the LTV Tower. The bank will be on the ground floor; upstairs will be the corporate offices of LTV and ESI; Ling will rove from floor to floor, coining money with no transit problems in between.

It is now six years since he incorporated and Ling is 40. His rise so far has been frighteningly fast. Now it may begin to level out. He seems tired at times and talks wistfully of slowing down a little, of lifting some of the pressure. But on the other hand, he has predicted that his mergers and growth will continue, that his major firm will eventually have sales of $1 billion.

The substance of all this, past and future, is to make Ling a figure of formidable financial muscle. When the chips are down, however, his power is not merely financial—there is a tremendous power in the man himself and he is a master at focusing it.

TRUE



He is confident as well. When I suggested that having a member of Lehman Brothers, the famous New York banking house, on his board was a strong point for Ling, he snapped, "It's a hell of a tribute to *them* to be on our board."

He needs all his confidence at the moment. Soon after the merger, the government filed an anti-trust suit against LTV. Ling beat it off as unwarranted, but it was expensive and LTV stock started to fall. Since it was going down anyway, he chose to take a $13 million loss he found buried in the corporate structure. Sooner or later it had to emerge; why not now? (Colonel Byrd recalls, "He was cold as ice. He said, 'What's the difference if we lose eight million or thirteen? Let's take it all now and be done with it.' ")

So the stock tumbled still further and then the disastrous general stock market break last May dropped it again. At this writing, with profits in 1962, LTV stock may have weathered the worst. But Ling's beloved ESI, even considering that in its prime it split three-for-one, is still woefully down.

If he is troubled by all this, he does not advertise it. In fact, he seems somewhat more concerned about where he stands in prestige than in finance. In checking, I found that his community image, which for the first time is actively interesting him, was badly mixed. People who know nothing about him say, "He's some kind of a crook, isn't he—a promoter or something?" But I toured Dallas trying to prove their point, seeking his enemies and asking for real dirt on him —and I found nothing of substance.

There is, however, a good bit of snide gossip current in Dallas which would seem to indicate that despite his faultless manners, dress and artistic attitudes, Dallas society has hardly swept him to its bosom. He insists that society actually is courting him and says with unpleasant sarcasm, "I've noticed recently (since he became powerful) people whom I used to think didn't like me are trying to get into my good graces." But when he headed the opera society, a social plum in itself, he was snubbed, so go the reports, with peculiar cruelty.

And then there is the matter of the house—that great, beautiful, somewhat arrogant castle. Ling was living in a neat little $250,000 home when he found for sale in the city's best residential district an estate which included an old mansion and a wooded 20-acre tract. He bought it and put a big steel-topped brick wall clear around it. He cut new roads, dammed the stream into a fishing lake overlooked by a dance pavilion, set in the golf course and a huge swimming pool and went to work on the house. He tore off its skin and rebuilt in every direction. A big fountain in front sends rhythmical "dancing waters" spouting aloft, a huge bomb shelter is buried nearby, the kitchen would supply a small hotel and the entire attic is a gym with Turkish bath. Doors, windows, whole sections of wall are delicately carved in walnut, the work of the best of a dwindling breed, the master carver. Superbly furnished, studded with excellent art, this is home for Jim Ling, bought and paid for in the sum of $3 million.

Now that he has the house, he may be trying to live up to it. The social pages are full of Dorothy Ling's entertainments in the new palace, but those in the know in Dallas still insist that Ling is looking down his nose at the rest of the city since he climbed to the heights. A banker complained that Ling cut him in the evening after talking to him about a loan during the day. And perhaps Dallas is right, for Ling does seem to be riding high. An old friend, an oil millionaire noted for his plain ways, says he phoned Ling's new home recently. A haughty voice inquired:

"And who is this?"

"Well," said the oilman, nettled, "who the hell is this?"

"This is the majuh-domo of the estate," the voice said.

"Oh, hell," said the oilman, and hung up.

That is Jim Ling, living in his castle, tended by his ego, master of an industrial empire and a fortune which he built almost overnight, a strange and complex man of many contrasts. We sat one day high in a Dallas office building, in one of his several offices, looking out over the flat Texas landscape. "I know what they think of me," he said in a voice tinged faintly with hurt. "Did you hear the story about the mausoleum director who tried to sell me a fancy tomb? I'm supposed to have said, 'I don't want a fancy one—I'll just need it three days.' "

Later, in a ruminative mood, slumped in the back seat of Lawson's Ford as the three of us shot across town to another office, Ling said, "I used to box in the Navy and one day they matched me with a stocky little fellow, and he came out and punched me in the heart and from then on I couldn't even lift my arms. He like to beat me to death—I thought he was going to tear my head right off." He paused, watching the slick, glittering buildings of Dallas pass by outside. Then he said, "It is good experience to get your butt beat into the ground every once in awhile. It is good for your humility."

Humble or arrogant, Oklahoma orphan or prince in a castle—what is Jim Ling? I put that question to a man who knows him well and he told me the truth: "Why man, he is a money maker, that's what. He is better than a printing press."

—David Nevin

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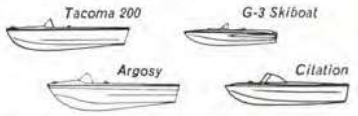

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[*Continued from page 39*]

was of course the wartime T20 with the White gas system. But these were only the preliminaries. After that it really began to get rough.

Five hundred FN rifles were made up in this country by Harrington & Richardson, Inc., of Worcester, Massachusetts. An equal number of T44s was completed by Springfield Armory to see if they would perform well when made by mass-production methods. The test results were the same. Both rifles functioned properly—though the Belgian gun was produced by a company that had never seen it before while the T44s were turned out by the factory where the rifle was invented. Then several thousand rifles of each design were obtained and samples sent to the service schools and combat units in the Arctic, the tropics and all parts of the United States. The testing went on winter and summer in rain, sand, snow and mud—for *five* whole years.

Through it all the contestants seesawed. First the FN rifle would be ahead, then the T44. And all the time Springfield Armory was turning out new modifications and changes to make the T44 perform better. In the combat-course test, both rifles were dunked bodily into a bath of mud and then fired. Reluctantly, the Army had to admit that the FN rifle passed the mud test while the T44 flunked. But the day was saved when it was decided that GIs ought to be able to load either rifle from the top with ammunition in clips. The FN had a sliding breech cover designed to prevent mud from fouling up the action, but it interfered with top loading. So off came the breech cover. The Army sighed with relief when mud jammed up the unprotected FN rifle receiver too. Then there were the Arctic tests in snow and extreme cold. In the winter of 1953-54 both rifles had defects, but the FN appeared to have more of them than the T44. The following winter both rifles were found suitable for Arctic use. But when the last round was fired—after five years and $4,052,000 had been spent—the T44 won out, as everyone around the Pentagon knew it would from the start.

The T44 won on points that had nothing to do with performance. On May 1, 1957, Army Secretary Wilbur Brucker said that both the FN and the T44 were found suitable for use by the Army. However, the T44 was selected for adoption because it was one pound lighter and considered better suited for mass production and training. All three reasons have since turned out to be wrong. Modifications have added a pound of weight to the rifle. Mass production has been an expensive nightmare. And training is more difficult than with the M1.

Criticism of the M14 snafu comes from all sides. One expert whose own experience with Army weapons development qualifies him to comment is Mel Johnson. He operates a firearms engineering office in New Haven, Connecticut, and is widely regarded as one of the outstanding authorities on automatic-weapons design. A rifle of Johnson's design was under consideration when the Garand rifle was adopted. Despite his arguments with the Army over the merits of his own rifle, he's been a consultant on small arms to the Office of the Secretary of Defense for more than a decade. Asked if military policy against accepting outside arms inventions—commonly referred to in the gun trade as the "NIH" factor (Not Invented Here)—has changed any in the past 20 years, Johnson puffs on a cigar and snorts: "If it has, I haven't seen any evidence of it."

And Johnson is rather sarcastic about the M14. He agrees with old rival John Garand—they've been friends since 1940—though he's even more outspoken. Noting published excuses that any new weapon has to go through a period of debugging, Johnson points out rather acidly that the M14 is hardly new. The M14 uses the Garand breech lock, the BAR-type magazine and the White gas action, all invented 30 to 40 years ago. And, he adds, the rifle has been around at least 15 years. Johnson blames an "unsound" gas system for the M14 production difficulties.

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Though Johnson has made a formal proposal to the Pentagon to redesign the M14, there has been no reply and Johnson doesn't really expect one. He does think, however, that the M14 may be "saved" by a series of unannounced changes—which seem to be going on already. But changed or not, Johnson feels the M14 is very little if any improvement over the M1 Garand considering all the years and millions squandered on it.

What happened to the M14 after it was adopted is a tale of snafus even worse than those of the development period. Mass production of it has been a long and rocky road. The British, Canadians, Australians, Belgians and Latin nations who adopted the FN rifle had no trouble at all getting equipped. In fact the FN is being advertised for sale in commercial markets all over the world but no one has appeared in line to ask for the M14. The delays in M14 procurement came from the start. None were even ordered for 11 months after the rifle was officially adopted in mid-1957, and the first few Armory-produced rifles did not come off the line until the fall of 1959. In fact, ordering the M14 into production at all was probably a result of the 1958 Lebanon crisis. At that time a congressman stung the Pentagon with the information that our Marines were landing with

World War II Garand rifles while the Israelis carried FNs and the Arabs were well supplied with new Russian automatics.

So, in the spring of 1959 the Army started production at Springfield and gave out contracts to Harrington & Richardson and the Winchester-Western Division of Olin Mathieson Chemical Corp., at New Haven, Connecticut, for the first 85,000 M14s. These first commercial orders called for a price of $68.75 per rifle —though the Springfield Armory price for M14s was $155.98 at the time. The abnormally low civilian quote may have been motivated by a gamble for new business as old as the arms game—get the contract at any price and run the risk of a loss, hoping you can negotiate upward with design changes. If this was the idea, it worked beautifully. Early this year the Army admitted that the average price for M14s in 1960 was $150.75, and in 1961, $130.61. The present cost is budgeted at $100 each, but is actually running about $126. These prices are without slings, bayonets or spare parts.

Volume production on the M14 did not begin until late 1960 and during that year the Ordnance Department and the commercial manufacturers were swearing at each other almost daily over prices, specification changes and schedules. By early 1961 reports that production was 60 percent behind schedule and that some M14s had blown up in training reached Congressional ears. The hearings on military appropriations that spring were rather tense for the Ordnance Department. Its chief, Lt. Gen. John H. Hinrichs, was given a particularly rough going over on production delays and foul-ups. After admitting that the M14 is not an easy rifle to make, he was sarcastically cross examined by a congressman who acted like the browbeating prosecutor you love to hate on TV.

In reference to rumors that some M14s had blown up, the general was asked if this had happened to three rifles. He answered that none had blown. The congressman smiled and then asked if it had happened to two M14s. The general said the number was zero. Again the congressman pressed Hinrichs if perhaps only one rifle had exploded, but the general stuck to his story. Finally, he was allowed to make a statement. "We do not consider that any of the M14 rifles actually blew up," Hinrichs said. "However, in December, 1960, there were several bolts in rifles which malfunctioned at Fort Benning. . . ."

He went on to say that the receivers had cracked in firing and that this had been traced to a commercial source supplying steel that was not up to specification. Whether anyone was hurt by these "non-explosions" was not explored.

Later in 1961 persistent reports of delays and defects in the M14 program prompted a special subcommittee of the Senate Armed Services Committee to get into the act. They went into the production history of the M14 project quite thoroughly, taking testimony from everyone involved. In view of the Army's insistence that the rifle was particularly adapted to mass production, what Har-

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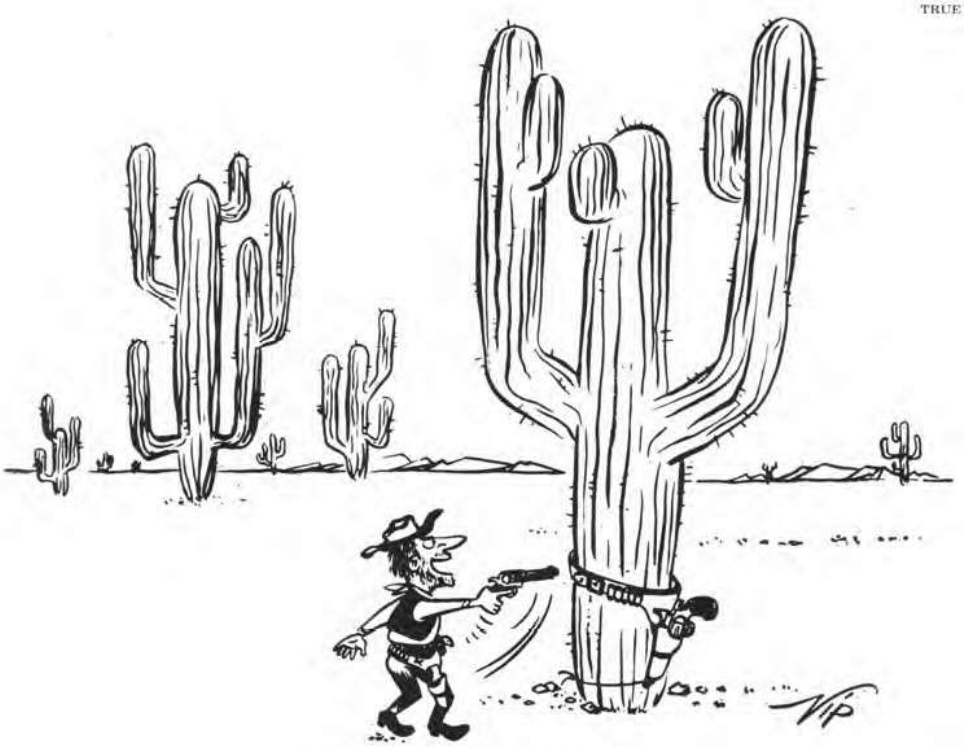

"Too fast for you, wasn't I?"

rington & Richardson had to say is enlightening. Blamed by the Army for goofing on the heat treatment of bolts and receivers due to inadequate quality control, H & R fired back that the tolerance requirements "were not compatible with mass-production methods." The company also blamed the Army for sending them inaccurate gauges and delivering them late.

Then it was Winchester's turn. It charged the Army with upgrading its requirements and inspection standards *after finding performance problems* in its original design standards.

In short, the tolerances on the M14 have to be almost impossibly tight or the rifle won't work. Can you imagine what would happen in the hurried atmosphere of wartime production? Winchester also said the steel specified for M14 barrels proved to be non-machinable at high production rates, and much time was lost while the Army decided on another steel for the job. The slowness of getting approvals for the simplest design or manufacturing change was mentioned by both companies as a major problem. What all of this demonstrates is that Government arsenals are just not set up for mass production. It also shows that a rifle made in a toolroom is not necessarily going to produce in the same way on an automated assembly line. It should be remembered, of course, that mass-production capability was one of the reasons the Army said it liked the M14 in the first place.

Right now all seems to be well between the Army and the two outside M14 producers. The rifle is coming off the assembly lines in quantity, though it's not really the same weapon that was tested and adopted so long ago. Ordnance sources admit that more than 100 design changes have been made though they claim most of them are minor, such as a different buttplate and a new handguard.

However, the Army itself is revealing far more basic changes by sending out M14 poop sheets carrying two sets of specifications—one of them crossed out. The changes are interesting. The M14 has gained in weight from 8.7 to 9.5 pounds and grown in length by an eighth of an inch. At the same time its maximum range has dropped from 4,200 yards to 3,500 and the cyclic rate of automatic fire from 750 rounds per minute to 715.

Last fall the Army announced that a competition would be held to choose a third commercial producer of the M14 and unwittingly kicked another hornet's nest. When the announcement was made almost a hundred companies all over the country were said to be scrambling for the contract, but after the specifications were issued less than 40 qualified. When bidding time came only 11 companies threw in proposals. Surprisingly, Colt's was not one of these. The old Hartford, Connecticut, firm qualified for the bidding, but dropped out soon afterward without explanation. If you talk to Fred A. Roff, Jr., president of Colt's, about this he's friendly but will say only that the company was so busy at the time it was unable to do the work necessary to come up with an intelligent bid. On the M14 itself, Roff will say nothing—good or bad. When you ask about his own automatic rifle, the AR15 (see box), he becomes voluble and will offer to sell you a few at a time for $124 each or in large quantities for "under $100."

Among those companies that did bid to build 100,000 M14s were: Ford, Chrysler, Studebaker, Remington, Frigidaire Division of GM, Vinco, West Virginia Ordnance, Westinghouse, Herz-Chambers Corp., and Thompson-Ramo-Wooldridge. Thompson-Ramo won with a bid of $15,076,234 or $150.76 each—though West Virginia Ordnance had bid $12,640,003 or $126.40 apiece. The Army made the award by "evaluating" Thompson-Ramo's bid down to $10,092,523—$100.92 per M14—which, of course, made it low bidder. What happened was that T-R-W bid $8,554,070 for the 100,000 rifles or $85.54 each and signed a second contract for $6,522,164 in tools and equipment. Some of this was rehabilitation of company machinery but most of it was new stuff to be acquired for the Government.

Since that time other mathematical exercises have been brought out to show that the Thompson-Ramo M14s will cost $104.75 apiece—a further evaluation in a different direction. But the Army also admits that the company hasn't made any M14s yet so no one really knows what they're going to cost.

And now that the Army has its favorite rifle and most of the hubbub has ended we come to the most amazing part of all: nine out of 10 M14s issued today are set to fire only semi-automatic.

After nearly 20 years of searching for an automatic replacement for the M1 the Army is using most of its new M14s to fill the same role as the M1 in the same way. Present policy is to issue only two full-automatic M14s to an Infantry squad—and hand out the rest without a selector switch on them. Marine General Megee thinks this policy is a sop to practicality. "Who is going to carry the ammo for full-auto fire?" he asks. And Army statements seem to bear out his reasoning. It's emphasized that an M14 rifleman can deliver at least 30 aimed shots per minute, which the Army says is more destructive and demoralizing to the enemy than the spray type of fire of the submachine gun, to say nothing of the waste of ammunition.

In other words, the Army has returned to the philosophy it used to defend the M1 in Korea—when the Chinese were using burp guns and Russian automatic rifles. It said then that the M1 could be fired as fast as was necessary and that aimed fire is more effective in terms of hits than hard-to-control full-auto bullet spraying. This makes sense, but it leaves a big question unanswered: Why didn't they just stick with the Garand and put a 20-shot magazine on it?

At the moment, the Marine Corps has equipped most of its combat units with M14s. But the Corps is continuing to do recruit training with the old reliable M1 rifle. This is said to be an economy move to use up present stocks of .30-06 ammunition and is scheduled to continue until 1965. This may be the only reason. But some people who have used the M14 say it's also a hard rifle on which to train new shooters—especially when fired full automatic. With a conventional stock and no compensator or muzzle brake, the rifle is difficult to control. This, as well as the Army's philosophy on aimed fire, may be back of the policy of issuing most M14s without selector switches. But don't despair. If you get your hands on a semi-automatic M14 remember that company commanders are supposed to carry extra switches with them in case of an enemy charge. This ought to work out just dandy—especially on dark nights.

—John S. Tompkins

I Found a New, Easy Way to Quit Smoking

Now I Feel Better Flying Jets!

By Captain Roger Don Rae

TWENTY-FIVE YEARS ago I was a stunt and racing pilot. These activities brought me quite a few awards including the Freddie Lund Trophy for precision acrobatic flying and numerous speed race trophies. Today I am a lot more conservative—I just fly jets for a well-known U.S. airline.

However, looking back over my flying career there is one thing I am sure of. Flying has constantly grown more rugged, calling for more and more alertness and stamina on the part of the pilot in command—a trend that has reached its culmination in this present age of jets. Keeping fit is an individual matter and everybody has to decide for himself. For my part, I decided a few years ago to give up smoking.

A lot of research has gone into showing what happens to pilots who smoke. This research shows that smoking can have two effects on an individual: one from the nicotine he absorbs, and the other from the carbon monoxide that enters the system.

The toxic effect of carbon monoxide produces an oxygen deficiency in the blood, like being at a high altitude. A flier who is a pack-a-day smoker in effect adds about 8,000 feet to his actual altitude. Then there is the direct effect of the nicotine on the system. Nicotine raises the body oxygen requirement as much as 10 to 15%.

There is a mass of evidence to show that smoking makes it more difficult to see at night. The United States Air Force Medical Service Digest says: "The ability to see at low levels of illumination is markedly decreased by smoking." This is something to think about if you drive an automobile at night.

As a result of all this I decided that I had better give up smoking. I decided; but if you have ever tried to quit smoking, you know what happened next. At that time I was smoking 3 packs a day. No matter what I did, I just couldn't quit for good. I'd stop for a day or two, then something would happen and I would backslide.

It was during one of these crises that a friend of mine told me about Bantron, a little white pill that had worked wonders for him when his doctor ordered him to quit smoking.

I decided to try Bantron. The result was amazing. I stopped smoking in just one week, and it was so easy I hardly noticed I was doing it. No withdrawal pangs, no tension or nervousness, no backsliding. I haven't smoked since.

The formula for these little pills was discovered by doctors in the Research Department of Loyola University in Chicago. Its principal ingredients are lobeline sulphate buffered by two antacids. Lobeline sulphate is extracted from the Lobelia plant which is sometimes called "Indian Tobacco." This lobeline extract is a first cousin to nicotine, mimicking its action but is not habit forming. It acts as a substitute for the nicotine in your system and curbs the desire for tobacco. It does not affect the taste or make smoking unpleasant.

So startling were the first results obtained with these little pills that further investigation was carried on. They were tested on hundreds of people. It was found that they helped 83%—more than 4 out of 5—of all people who wanted to stop smoking, to do so easily and pleasantly in five to seven days. Just as important, those who didn't stop completely had drastically cut down.

But suppose you *didn't* want to stop smoking and made no effort to do so? What would happen if you took Bantron? Well, I read the answer in a report published in a leading medical journal. It was found that most people who took Bantron automatically smoked less whether they wanted to or not. They did not smoke fewer cigarettes, but they smoked less of each cigarette they lit.

Naturally the discovery of such an easy, effective antidote for smoking caused a tremendous stir in scientific circles. It was reported in medical journals and demand for it began coming from every corner of the globe. The Campana Corporation of Batavia, Illinois, was chosen to market these amazing pills. Bantron has been proved so safe when taken as directed that it can actually be bought without a doctor's prescription. Today, you can get it at any drug store in the United States for only $1.25 a box (suggested retail price). It is also available in Canada.

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Furious Racer to Nowhere

[*Continued from page* 51]

no longer to the earth, and not yet to death. At such speeds I am—me!"

The little man on the big bike sped down the road pedaling faster, faster, his legs a blur.

José Meiffret was born at St. Raphael on the Mediterranean coast of France on April 27, 1913. When he was a year old, his father went off to war and did not come back. The boy became devoted to his mother; she was his whole life. But on the day of his first communion, a great and glorious day in any French family, the 11-year-old José walked behind his mother's coffin instead, the tears streaming down his face.

He went to live with a grandmother, a dry old woman who believed that the key to success in life was an early start. She sent José out to work. He worked as a busboy in a hotel. He kept pleading with his grandmother to let him play with other boys, or at least to try some other job. She slapped his face and called him lazy. Finally, in desperation, José loaded a tray with dishes swimming in sauces. Then he marched straight across the dining room to the table of the hotel's richest and most illustrious client, and tipped over the tray.

Grandma, furious, apprenticed the boy to a mechanic. A little later he worked as a clerk in a trucking business.

As he grew up, bored, without love from anyone, he made grandiose plans for the future. Someday he would be famous. He did not know how. He must find a way. He worked at weight lifting and body building. He was small, but his muscles became hard, and his will power too. At 15 he learned to ride a bike, and got flattened by a car in the street near Nice. He was hospitalized several days.

He used to ride for miles out into the country just to get away from his grandmother. He joined some cycling clubs near Nice, came to know and admire the local champions, and decided that in cycling he too could win fame and riches. He entered his first race, was soon outdistanced by the pack, and pedaled alone, far behind, for nearly a hundred miles, being mocked and jeered by the crowds.

Still searching for a place where he might shine, he tried racing behind motorcycles as windbreaks. One day, Meiffret and two other men set out to race behind motorcycles from Nice to Cannes to Nice, a distance of about 50 miles round-trip through traffic. Meiffret won. It was an insignificant victory, but it was his first and it filled him with ideas.

"I felt sensational," he recalls. "My life seemed to have taken direction. I was exalted. I felt sure I had found a way to escape from mediocrity, to compete, to conquer."

War came to Europe. Meiffret spent five years in various concentration camps in Germany. In 1945 he came back to Nice flat broke, defeated and desperate.

He started a business exporting flowers. It failed.

He got older. In 1949, at the age of 36, he ran into a man named Giorgetti who planned to try to set a new world record behind a motorcycle. Giorgetti was attempting to interest commercial sponsors who would buy his equipment, arrange to close off a stretch of roadway, pay police fees, provide publicity and prize money and—in short—make the whole thing worth while.

Meiffret became passionately interested in the project, and then watched the whole thing fall apart. No one would put up the money Giorgetti thought the record attempt was worth.

Disgustedly, Giorgetti abandoned the idea.

Meiffret, distraught, decided to try for the record himself, paying most of the expenses himself. Weeks of effort went into making arrangements, and practicing, and Meiffret at last did break the record. Although he was elated by what he had done, there were no flowers, little publicity, and no glory to speak of.

Then another Frenchman easily broke Meiffret's record. A year passed and Meiffret heard of a day-long cycling festival at the Grenzlandring Circuit in Germany. It was more a circus than a series of races, and officials were glad to have Meiffret come there to try to get his record back. There even was to be some prize money.

Meiffret engaged a German agent to handle the financial details, concentrated on the record, and did break it. The mob swelled down onto the track, submerged him in flowers and carried him about in triumph. To Meiffret, this was the most glorious moment of his life.

It did not last long. The German agent couldn't be found, nor could any of the prize money. The disillusioned Meiffret hung about for days trying to interest someone in at least giving him a chance to break some other record. No one would listen. He went back to France.

Meiffret now reasoned that pedaling behind a motorcycle wasn't exciting enough to interest sponsors and crowds. Behind a racing car at much higher speeds it might be a different story, he hoped. In the beginning of 1951, he arranged to try for an absolute speed record on a bicycle. He engaged Yves Giraud Cabantous as driver of the racing car, which was an elderly 4.5 liter Talbot bought from the widow of Raymond Sommer, the recently killed French racing driver.

The record at this time was 108.92 miles per hour, set in the United States in 1941 by a Frenchman named Alfred Letourner under the sponsorship of the American Automobile Association, on a special Schwinn bike.

Letourner had used an oversize front sprocket with 57 teeth, but his bike was normal compared to Meiffret's. Meiffret's sprocket was almost as big as the front wheel, with 130 teeth.

Meiffret and Cabantous went to Toulouse in October. They made four attempts on Letourner's record. The first time the gear box broke in the racing car. The second time, as the car's speedometer read 80 mph, Meiffret's foot slipped from the pedal. In an instant the bike dropped back out of the windbreak and a blast of wind, smacking Meiffret in the face, just missed flattening him to the road.

The third time it rained.

The police and government officials of the Toulouse region had been patient, but now Meiffret could see that they were losing interest. Each attempt meant closing off the road, moving animals back, warning farmers to tie up dogs and block off driveways. Hundreds of gendarmes were involved. But official patience had worn thin. Meiffret knew that his fourth chance was his last.

The date was October 13, 1951. Down the road Meiffret came, pedaling frantically in the windbreak behind the racing car. He flashed across the timing

[*Continued on page* 122]

TRUE

"All I asked him was had he ever considered getting married?"

TRUE goes shopping

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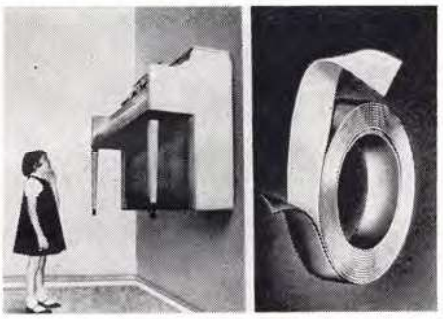

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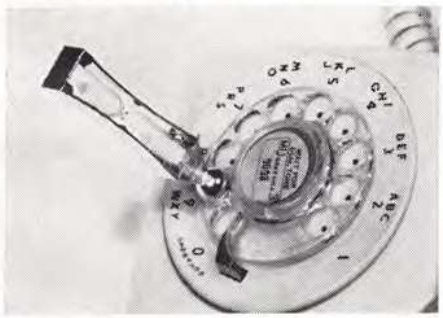

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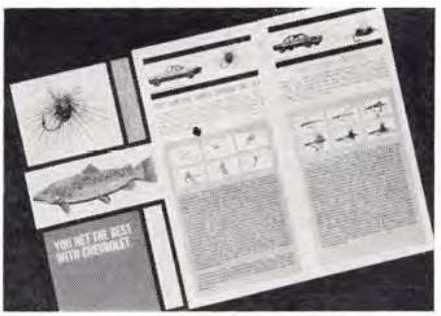

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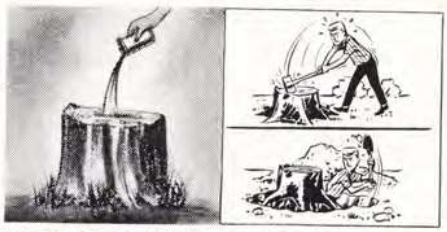

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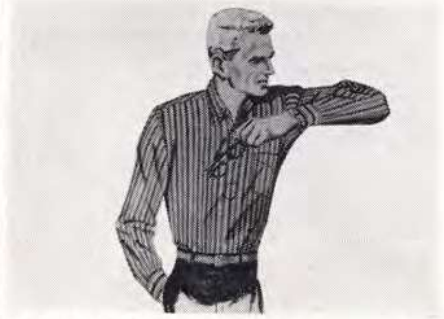

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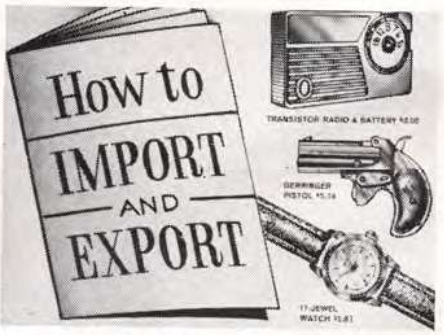

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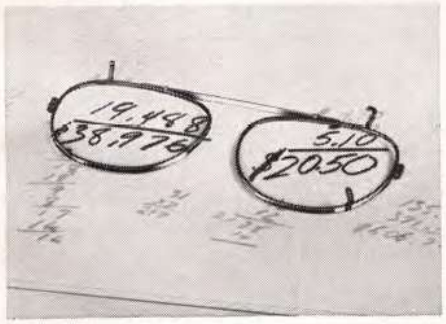

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[Continued from page 118]
strip. Stopwatches clicked off. The time was read and calculations made. José Meiffret had beaten Letourner's record. The new absolute speed record on a bicycle was 109.123 miles per hour.

Now at last Meiffret knew some of the glory he had hungered for so long. He was feted everywhere he went in France. People begged him to make speeches. Villages borrowed his bike and set it up on display outside town hall. A new carnation was named in his honor. He published a book.

Thrilled by public response, Meiffret determined to go on and on. But on October 12, 1952, at Montlhéry near Paris, as Meiffret sped along behind the windbreak, probably at less than 100 miles per hour, something went wrong. No one could ever say what. Meiffret was flung off the bike into the road. He tumbled down the road bounding and bouncing, coming to rest at last more than 100 yards past the wreckage of his bike.

He lay in the road covered with blood. His face looked ruined. The front of his skull was caved in. Men ran to him.

"Where's my bike?" he murmured, then passed out.

His skull was fractured in five places. He lay in a deep coma. Reporters telephoned the hospital.

"Does he have any chance to survive, Doctor?"

"No, none."

But 28 days later Meiffret walked out f the hospital. He was too weak to work, and his fame did not survive his money.

As his strength came back he tried to interest sponsors in another record attempt. No one would listen to him.

He found work as a florist and gardener in the village of Perthes, 120 miles east of Paris. He ate only health foods, slept on a board, practiced strict chastity. Some day, he vowed, he would try again.

Three years passed before Meiffret had enough money for another attempt. It failed.

Another attempt was organized in 1957, then orders came through from Paris closing the roads to Meiffret.

Isolation and years crept over José Meiffret. He lived alone in a cell of a room with pictures and press clippings of himself pasted to the walls. He wrote hundreds of letters to people he hoped might help him try again.

He went on practicing. He earned less than $100 a month, but saved nearly all of it. Soon he would have enough for one last chance at the RECORD.

Toward the end of 1961 he heard of a new autobahn near Lahr, Germany. It was straight, flat and not yet open to the public. In the next frantic weeks Meiffret hired timers, officials, police; he prepared the record bike, tested the now 12-year-old racing car. The cost: more than $3,000, all Meiffret had.

In September Meiffret and Georges Grignard, who had replaced Cabantous as driver of the Talbot, arrived at Lahr. The Road was covered by a film of gravel. Meiffret was bitterly disappointed. Not only did the gravel add to the risk, it would reduce speed too. Lahr officials apologized, and offered to have the gravel swept off the concrete. Meiffret gloomily wondered how long it would take to broom off 10 miles of road, and how much it would cost. In the meantime he had to practice. How fast did he risk going on the gravel?

Day after day he went out to practice, pedaling behind the old Talbot at 75, 80, 85 miles per hour. The Talbot wasn't running right. It could hardly get over 100 mph by itself flat out, much less accelerate gradually with Meiffret behind it. Meiffret altered the shape of the windbreak, and worked on the bike itself, experimented with sprockets with more teeth, and then with sprockets with less.

The weather turned bad, then suddenly clear again. Meiffret tried for the record September 27 but failed. September 29, just before sunset, he decided to make one last try.

Grignard gunned the Talbot's engine.

Meiffret stood on the pedals, leaning out over the handlebars, pushing down with all his strength to get the bulky bike moving. In his pocket was a paper, his last will and testament. It read:

"If I should crash and the surgeons can do no more for me, I ask that I be buried here, beside the road of my attempt. Above all, don't bother anyone about me. Thank you." Signed: José Meiffret.

The record run started.

Slowly, painfully, with much wobbling from side to side, Meiffret got the bike moving. It was a strange thing to see, the bike seeming to leap forward although the pedals moved hardly at all. Slowly, Meiffret gained speed. Somewhere between 40 and 60 miles per hour, Meiffret ducked into the windbreak behind the Talbot. In there, at the level of his front wheel, was a horizontal roller. Meiffret's job was to keep his wheel one inch from that roller. If he touched the roller at low speed, it would roll; but if he touched it even slightly at over a hundred miles an hour he was a dead man.

Jutting out from the windbreak, level with Meiffret's face as he leaned forward over the handlebars, was a microphone connected to Grignard's helmet. Now as the car picked up speed, as Meiffret's pumping legs forced the bike along, Meiffret began to shout into the mike: "Faster, faster."

The rev indicator on the Talbot reached 3,000, 3,200. Grignard hated all this, he said later. He kept looking into his rear view mirror, expecting to see that Meiffret wasn't there anymore. Grignard cursed himself for getting involved in this fool record. Any second he expected to see Meiffret bounding in the road behind him.

"Faster, faster."

Grignard put his foot down, cursing himself, cursing Meiffret.

"Faster, faster."

The rev counter went to 3,300, 3,400. Previously Meiffret, working with a slide rule, had calculated that 3,650 revs worked out to 110 miles per hour, a new record if Meiffret could hold it for the entire timed kilometer.

"Faster, faster."

Grignard was still cursing. The rev counter was stuck on 3,500. He shoved his foot into the floor. The car picked up speed. 3,600 revs, 3,700. Could Meiffret keep it up for the timed kilometer?

Along both sides of the road people were screaming with excitement. Behind the windbreak, Meiffret's bike was vibrating violently. It looked as if he would get tossed off at any moment.

The Talbot, Meiffret still in the windbreak, crossed into the timed zone, automatically starting stopwatches.

"Faster, faster," screamed Meiffret into the mike.

His legs ached, he could barely breathe. He thought: 20 seconds more and the RECORD is mine anew. The record will be my revenge on life, revenge on the misery I have suffered.

Across the line he flashed.

Grignard began to slow the car. Gradually, Meiffret's legs ceased whirling.

As the big, awkward bike rolled back toward the timers' stand, sweat poured off Meiffret. A nervous reaction had set in. Hot flashes came over him, a twitch started in his eye, his knees quivered.

The loud speaker crackled. A man's voice said: "A new absolute speed record on a bicycle, 109.6 miles per hour. Ladies and gentlemen, José Meiffret, the fastest man in the world."

As the crowd swept down over him, Meiffret experienced an exaltation which was, to him, ineffable, incredible, and he forgot "all the failures, all the mortifications, all the loneliness of my life. I was free."

And he added: "Since my crash in 1952 I had known hunger, thirst, bitterness and pain. But I knew that one day the RECORD would avenge me. My record is a cry of hope and life."

From out of the crowd came a man offering a Mercedes 300SL for another try at the record. The Mercedes was faster than the old Talbot and, more importantly, much wider.

On November 12, 1961, behind the Mercedes, José Meiffret pedaled his bike at 115.968 over the timed kilometer. It was the fastest any man in history had ever traveled under his own power.

Meiffret is planning to attack his record again soon. He is almost sure that 130 miles per hour is possible, even for a man five feet, three inches tall, 50 years old, with a soft patch in his skull—provided a man wants to enough. Will power, he says, can turn the most fragile of men into a giant.

His friends are certain that he won't stop until he passes this goal, or is killed in the attempt. —Robert Daley

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SILENT SPRING

■ There was once a town in the heart of America where all life seemed to live in harmony with its surroundings. The town lay in the midst of a checkerboard of prosperous farms, with fields of grain and hillsides of orchards where, in spring, white clouds of bloom drifted above the green fields.

Along the roads, laurel, viburnum and alder, great ferns and wildflowers delighted the traveler's eye through much of the year.

Even in winter the roadsides were places of beauty, where countless birds came to feed on the berries and on the seed heads of the dried weeds rising above the snow. The countryside was, in fact, famous for the abundance and variety of its bird life, and when the flood of migrants was pouring through in spring and fall people traveled from great distances to observe them.

Others came to fish the streams, which flowed clear and cold out of the hills and contained shady pools where trout lay. So it had been from the days many years ago when the first settlers raised their houses, sank their wells, and built their barns.

Then a strange blight crept over the area and everything began to change. Some evil spell had settled on the community: mysterious maladies swept the flocks of chickens; the cattle and sheep sickened and died. Everywhere was a shadow of death. The farmers spoke of much illness among their families.

In the town the doctors had become more and more puzzled by new kinds of sickness appearing among their patients. There had been several sudden and unexplained deaths, not only among adults but even among children, who would be stricken suddenly while at play and die within a few hours.

There was a strange stillness. The birds, for example—where had they gone? Many people spoke of them, puzzled and disturbed. The feeding stations in the back yards were deserted. The few birds seen anywhere were moribund; they trembled violently and could not fly.

It was a spring without voices.

On the mornings that had once throbbed with the dawn chorus of robins, catbirds, doves, jays, wrens, and scores of other bird voices there was now no sound; only silence lay over the fields and woods and marsh.

No witchcraft, no enemy action had silenced the rebirth of new life in this stricken world. The people had done it themselves.

This town does not actually exist, but it might easily have a thousand counterparts in America or elsewhere in the world. I know of no community that has experienced all the misfortunes I describe. Yet every one of these disasters has actually happened somewhere, and many real communities have already suffered a substantial number of them. A grim specter has crept upon us almost unnoticed, and this imagined tragedy may easily become a stark reality we all shall know.

The history of life on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth's vegetation and its animal life have been molded by the environment. Considering the whole span of earthly time, the opposite effect, in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species—man—acquired significant power to alter the nature of his world.

During the past quarter century this power has not only increased to one of disturbing magnitude but it has changed in character. The most alarming of all man's assaults upon the environment is the contamination of air, earth, rivers, and sea with dangerous and even lethal materials. This pollution is for the most part irrecoverable; the chain of evil it initiates not only in the world that must support life but in living tissues is for the most part irreversible. In this now universal contamination of the environment, chemicals are the sinister and little-recognized partners of radiation in changing the very nature of the world—the very nature of its life.

Long before the age of man, insects inhabited the earth—a group of extraordinarily varied and adaptable beings. Over the course of time since man's advent, a small percentage of the more than half a million species of insects have come into conflict with human welfare in two principal ways: as competitors for the food supply and as carriers of human disease.

Disease-carrying insects become important where human beings are crowded together, especially under conditions where sanitation is poor, as in time of natural disaster or war or in situations of extreme poverty and deprivation. Then control of some sort becomes necessary.

It is a sobering fact, however, as we shall presently see, that the method of massive chemical control has had only limited success, and also threatens to worsen the very conditions it is intended to curb.

Under primitive agricultural conditions the farmer had few insect problems. These arose with the intensification of agriculture—the devotion of immense acreages to a single crop. Such a system set the stage for explosive increases in specific insect populations.

Single-crop farming does not take advantage of the principles by which nature works; it is agriculture as an engineer might conceive it to be. Nature has introduced great variety into the landscape, but man has displayed a passion for simplifying it. Thus he undoes the built-in checks and balances by which nature holds the species within bounds. One important natural check is a limit on the amount of suitable habitat for each species. Obviously then, an insect that lives on wheat can build up its population to much higher levels on a farm devoted to wheat than on one in which wheat is intermingled with other crops.

The same thing happens in other situations. A generation or more ago, the towns of large areas of the United States lined their streets with the noble elm tree. Now the beauty they hopefully created is threatened with complete destruction as disease sweeps through the elms, carried by a beetle that would have only limited chance to build up large populations if the elms were only occasional trees in a richly diversified planting.

Another factor in the modern insect problem is one that must be viewed against a background of geologic and human history: the spreading of thousands of different kinds of organisms from their native homes to invade new territories. This worldwide migration has been graphically described by the British ecologist Charles Elton in his recent book *The Ecology of Invasions*. These invasions, both the naturally occurring and those dependent on human assistance, are likely to continue indefinitely.

Quarantine and massive chemical campaigns are only extremely expensive ways of buying time. We are faced, according to Dr. Elton, "with a life-and-death need not just to find new technological means of suppressing this plant or that animal;" instead we need the basic knowledge of animal populations and their relations to their surroundings that will "promote an even balance and damp down the explosive power of outbreaks and new invasions."

Much of the necessary knowledge is now available but we do not use it. It is not my contention that chemical insecticides must never be used. I do contend that we have put poisonous and biologically potent chemicals indiscriminately into the hands of persons largely or wholly ignorant of their potentials for harm. We have subjected enormous numbers of people to contact with these poisons, without their consent and often without their knowledge.

There is still very limited awareness of the nature of the threat. This is an era of specialists, each of whom sees his own problem and is unaware of or intolerant of the larger frame into which it fits. It is also an era dominated by industry, in which the right to make a dollar at whatever cost is seldom challenged. When the public protests, confronted with some obvious evidence of damaging results of pesticide applications, it is fed little tranquilizing pills of half truth. We urgently need an end to these false assurances, to the sugar coating of unpalatable facts. It is the public that is being asked to assume the risks that the insect controllers calculate. The public must decide whether it wishes to continue on the present road, and it can do so only when in full possession of the facts.

For the first time in the history of the world, every human being is now subjected to contact with dangerous chemicals, from the moment of conception until death.

In the less than two decades of their use, the synthetic pes-

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ticides have been so thoroughly distributed throughout the animate and inanimate world that they occur virtually everywhere. They have been recovered from most of the major river systems and even from streams of groundwater flowing unseen through the earth. Residues of these chemicals linger in soil to which they may have been applied a dozen years before. They have entered and lodged in the bodies of fish, birds, reptiles, and domestic and wild animals so universally that scientists carrying on animal experiments find it almost impossible to locate subjects free from such contamination. They have been found in fish in remote mountain lakes, in earthworms burrowing in soil, in the eggs of birds—and in man himself.

These chemicals are now stored in the bodies of the vast majority of human beings, regardless of age. They occur in the mother's milk, and probably in the tissues of the unborn child.

All this has come about because of the sudden rise and prodigious growth of an industry for the production of man-made or synthetic chemicals with insecticidal properties. This industry is a child of World War II. In the course of developing agents of chemical warfare, some of the chemicals created in the laboratory were found to be lethal to insects. The discovery did not come by chance: insects were widely used to test chemicals as agents of death for man.

The result has been a seemingly endless stream of synthetic insecticides. In being man-made—by ingenious laboratory manipulation of the molecules, substituting atoms, altering their arrangement—they differ sharply from the simpler insecticides of prewar days. These were derived from naturally occurring minerals and plant products—compounds of arsenic, copper, lead, manganese, zinc, and other minerals, pyrethrum from the dried flowers of chrysanthemums, nicotine sulphate from some of the relatives of tobacco, and rotenone from leguminous plants of the East Indies.

What sets the new synthetic insecticides apart is their enormous biological potency. They have immense power not merely to poison but to enter into the most vital processes of the body and change them in sinister and often deadly ways. They destroy the very enzymes whose function is to protect the body from harm, they block the oxidation processes from which the body receives its energy, they prevent the normal functioning of various organs, and they may initiate in certain cells the slow and irreversible change that leads to malignancy.

A Who's Who of pesticides is therefore of concern to us all. If we are going to live so intimately with these chemicals—eating and drinking them, taking them into the very marrow of our bones—we had better know something about their nature and their power.

DDT is now so universally used that in most minds the product takes on the harmless aspect of the familiar. Perhaps the myth of the harmlessness of DDT rests on the fact that one of its first uses was the wartime dusting of many thousands of soldiers, refugees, and prisoners, to combat lice.

It is widely believed that since so many people came into extremely intimate contact with DDT and suffered no immediate ill effects the chemical must certainly be innocent of harm. This understandable misconception arises from the fact that—unlike other chlorinated hydrocarbons—DDT in powder form is not readily absorbed into the skin. Dissolved in oil, as it usually is, DDT is definitely toxic. If swallowed, it is absorbed slowly through the digestive tract; it may also be absorbed through the lungs. Once it has entered the body it is stored largely in organs rich in fatty substances (because DDT itself is fat-soluble) such as the adrenals, testes, or thyroid. Relatively large amounts are deposited in the liver, kidneys, and the fat of the large, protective mesenteries that enfold the intestines. This storage of DDT begins with the smallest conceivable intake of the chemical (which is present as residues on most foodstuffs) and continues until quite high levels are reached.

The fatty storage depots act as biological magnifiers, so that an intake of as little as 1/10 of 1 part per million in the diet results in storage of about 10 to 15 parts per million, an increase of one hundredfold or more. One part in a million sounds like a very small amount—and so it is. But such substances are so potent that a minute quantity can bring about vast changes in the body.

In animal experiments, 3 parts per million has been found to inhibit an essential enzyme in heart muscle; only 5 parts per million has brought about necrosis or disintegration of liver cells; only 2.5 parts per million of the closely related chemicals dieldrin and chlordane did the same.

All these facts—storage at even low levels, subsequent accumulation, and occurrence of liver damage at levels that may easily occur in normal diets—caused Food and Drug Administration scientists to declare as early as 1950 that it is "extremely likely the potential hazard of DDT has been underestimated." There has been no such parallel situation in medical history. No one yet knows what the ultimate consequences may be.

Chlordane, another chlorinated hydrocarbon, has all the unpleasant attributes of DDT. Its residues are long persistent in soil, on foodstuffs, or on surfaces to which it may be applied. Its deposits build up in the body in cumulative fashion.

As long ago as the mid-1930's a special group of hydrocarbons, the chlorinated naphthalenes, was found to cause hepatitis, and also a rare and almost invariably fatal liver disease in persons subjected to occupational exposure. More recently, in agriculture, they have been considered a cause of a mysterious and usually fatal disease of cattle.

In view of these antecedents, it is not surprising that three of the insecticides that belong to this group are among the most violently poisonous of all the hydrocarbons. These are dieldrin, aldrin and endrin.

Endrin is the most toxic of all the chlorinated hydrocarbons. In one of the most tragic cases of endrin poisoning there was no apparent carelessness; efforts had been made to take precautions apparently considered adequate. A year-old child had been taken by his American parents to live in Venezuela. There were cockroaches in the house to which they moved, and after a few days a spray containing endrin was used. The baby and the small family dog were taken out of the house before the spraying was done about 9 o'clock one morning. After the spraying the floors were washed. The baby and dog were returned to the house in midafternoon. An hour or so later the dog vomited, went into convulsions, and died. At 10 p.m. on the evening of the same day the baby also vomited, went into convulsions, and lost consciousness.

After that fateful contact with endrin, this normal, healthy child became little more than a vegetable—unable to see or hear, subject to frequent muscular spasms, apparently completely cut off from contact with his surroundings.

Several months of treatment in a New York hospital failed to change his condition or bring hope of change. "It is extremely doubtful," reported the attending physicians, "that any useful degree of recovery will occur."

The second major group of insecticides, the alkyl or organic phosphates, are among the most poisonous chemicals in the world. Parathion is one of the most widely used of the organic phosphates. It is also one of the most powerful and dangerous. The danger to all workers applying the organic phosphorus insecticides in fields, orchards, and vineyards, is so extreme that some states using these chemicals have established laboratories where physicians may obtain aid in diagnosis and treatment.

Malathion, another of the organic phosphates, is almost as familiar to the public as DDT. The alleged "safety" of malathion rests on rather precarious ground, for it depends entirely on the ability of the liver to detoxify the chemical. This ability may be destroyed by certain other chemicals. The full scope of the dangerous interaction of chemicals is as yet little known, but disturbing findings now come regularly from scientific laboratories.

The problem of water pollution by pesticides can be understood only in context, as part of the whole to which it belongs—the pollution of the total environment of mankind.

The pollution entering our waterways comes from many sources: radioactive wastes from reactors, laboratories, and hospitals; fallout from nuclear explosions; domestic wastes from cities and towns; chemical wastes from factories. To

these is added a new kind of fallout—the chemical sprays applied to croplands and gardens, forests and fields.

Many of the chemical agents in this alarming mélange imitate and augment the harmful effects of radiation, and within the groups of chemicals themselves there are sinister and little-understood interactions, transformations, and summations of effect.

Production of these synthetic chemicals in large volume began in the 1940's. It has now reached such proportions that an appalling deluge of chemical pollution is daily poured into the nation's waterways. When inextricably mixed with domestic and other wastes discharged into the same water, these chemicals sometimes defy detection by the methods in ordinary use by purification plants.

Professor Rolf Eliassen of the Massachusetts Institute of Technology testified before a Congressional committee to the impossibility of predicting the composite effect of these chemicals, or of identifying the organic matter resulting from the mixture.

"We don't begin to know what this is," said Professor Eliassen. "What is the effect on the people? We don't know."

To an ever-increasing degree, chemicals used for the control of insects, rodents, or unwanted vegetation contribute to these organic pollutants. Some are deliberately applied to bodies of water to destroy plants, insect larvae, or undesired fishes. Some come from forest spraying that may blanket 2 or 3 million acres of a single state with spray directed against a single insect pest—spray that falls directly into streams or that drips down through the leafy canopy to the forest floor, there to become part of the slow movement of seeping moisture beginning its long journey to the sea.

Probably the bulk of such contaminants are the waterborne residues of the millions of pounds of agricultural chemicals that have been applied to farmlands for insect or rodent control and have been leached out of the ground by rains to become part of the universal seaward movement of water.

In the entire water-pollution problem, there is probably nothing more disturbing than the threat of widespread contamination of groundwater. It is not possible to add pesticides to water anywhere without threatening the purity of water everywhere.

Seldom if ever does Nature operate in closed and separate compartments, and she has not done so in distributing the earth's water supply.

Rain, falling on the land, settles down through pores and cracks in soil and rock, penetrating deeper and deeper until eventually it reaches a zone where all the pores of the rock are filled with water, a dark, subsurface sea. This groundwater is always on the move, sometimes at a pace so slow that it travels no more than 50 feet a year, sometimes rapidly, by comparison, so that it moves nearly a 10th of a mile in a day. It travels by unseen waterways until here and there it comes to the surface as a spring, or perhaps it is tapped to feed a well. But mostly it contributes to streams and so to rivers.

Except for what enters streams directly as rain or surface runoff, all the running water of the earth's surface was at one time groundwater. And so, in a very real and frightening sense, pollution of the groundwater is pollution of water everywhere.

It must have been by such a dark, underground sea that poisonous chemicals traveled from a manufacturing plant in Colorado to a farming district several miles away—an extraordinary episode that may easily be only the first of many like it. In 1943, the Rocky Mountain Arsenal of the Army Chemical Corps, located near Denver, began to manufacture war materials. Eight years later the facilities of the arsenal were leased to a private oil company for the production of insecticides. Even before the change of operations, however, mysterious reports had begun to come in. Farmers several miles from the plant began to report unexplained sickness among livestock; they complained of extensive crop damage. Foliage turned yellow, plants failed to mature, and many crops were killed outright. There were reports of human illness, thought by some to be related.

The irrigation waters on these farms were derived from shallow wells. When the well waters were examined (in a study in 1959), they were found to contain an assortment of chemicals. Chlorides, chlorates, salts of phosphonic acid, fluorides, and arsenic had been discharged from the Rocky Mountain Arsenal into holding ponds during the years of its operation.

Apparently the groundwater between the arsenal and the farms had become contaminated and it had taken seven to eight years for the wastes to travel underground from the holding ponds to the nearest farm. This seepage had continued to spread and had further contaminated an area of unknown extent. The investigators knew of no way to contain the contamination or halt its advance.

All this was bad enough, but the most mysterious and probably in the long run the most significant feature of the whole episode was the discovery of the weed killer 2,4-D in some of the wells and in the holding ponds of the arsenal. Certainly its presence was enough to account for the damage to crops irrigated with this water.

But the mystery lay in the fact that no 2,4-D had been manufactured at the arsenal at any stage of its operation. After long and careful study, the chemists at the plant concluded that the 2,4-D had been formed spontaneously in the open basins. It had been formed there from other substances discharged from the arsenal; in the presence of air, water, and sunlight, and quite without the intervention of human chemists, the holding ponds had become chemical laboratories for the production of a new chemical—a chemical fatally damaging to much of the plant life it touched.

And so the story of the Colorado farms and their damaged crops assumes a significance that transcends its local importance. What other parallels may there be, not only in Colorado but wherever chemical pollution finds its way into public waters? In lakes and streams everywhere, in the presence of catalyzing air and sunlight, what dangerous substances may be born of parent chemicals labeled "harmless"?

It is, of course, not only the groundwaters that are becoming contaminated, but surface-moving waters as well—streams, rivers, irrigation waters. As ground and surface waters are contaminated with pesticides and other chemicals, there is danger that not only poisonous but also cancer-producing substances are being introduced into public water supplies.

Dr. W. C. Hueper of the National Cancer Institute has warned that "the danger of cancer hazards from the consumption of contaminated drinking water will grow considerably within the foreseeable future." And indeed a study made in Holland in the early 1950's provides support for the view that polluted waterways may carry a cancer hazard.

Arsenic, the environmental substance most clearly established as causing cancer in man, is involved in two historic cases in which polluted water supplies caused widespread occurrence of cancer. In one case the arsenic came from the slag heaps of mining operations, in the other from rock with a high natural content of arsenic. These conditions may easily be duplicated as a result of heavy applications of arsenical insecticides. The soil in such areas becomes poisoned. Rains then carry part of the arsenic into streams, rivers, and reservoirs, as well as into the vast subterranean seas of groundwater. Here again we are reminded that in nature nothing exists alone. To understand more clearly how the pollution of our world is happening, we must now look at another of the earth's basic resources, the soil.

The thin layer of soil that forms a patchy covering over the continents controls our own existence and that of every other animal of the land. Without soil, land plants as we know them could not grow, and without plants no animals could survive.

Yet if our agriculture-based life depends on the soil, it is equally true that soil depends on life, its very origins and the maintenance of its true nature being intimately related to

living plants and animals. For soil is in part a creation of life, born of a marvelous interaction of life and nonlife long eons ago.

Life not only formed the soil, but other living things of incredible abundance and diversity now exist within it; if this were not so the soil would be a dead and sterile thing. By their presence and by their activities the myriad organisms of the soil make it capable of supporting the earth's green mantle.

Perhaps the most essential organisms in the soil are the smallest—the invisible hosts of bacteria and of threadlike fungi. Bacteria, fungi, and algae are the principal agents of decay, reducing plant and animal residues to their component minerals.

The vast cyclic movements of chemical elements such as carbon and nitrogen through soil and air and living tissue could not proceed without these microplants. Without the nitrogen-fixing bacteria, for example, plants would starve for want of nitrogen, though surrounded by a sea of nitrogen-containing air.

Other organisms form carbon dioxide, which, as carbonic acid, aids in dissolving rock. Still other soil microbes perform various oxidations and reductions by which minerals such as iron, manganese, and sulfur are transformed and made available to plants. Also present in prodigious numbers are microscopic mites and primitive wingless insects called springtails. Despite their small size they play an important part in breaking down the residues of plants, aiding in the slow conversion of the litter of the forest floor to soil.

Of all the larger inhabitants of the soil, probably none is more important than the earthworm. Over three quarters of a century ago, Charles Darwin published a book titled *The Formation of Vegetable Mould, through the Action of Worms, with Observations on Their Habits.* In it he gave the world its first understanding of the fundamental role of earthworms as geologic agents for the transport of soil—a picture of surface rocks being gradually covered by fine soil brought up from below by the worms, in annual amounts running to many tons to the acre in most favorable areas.

This soil community, then, consists of a web of interwoven lives, each in some way related to the others—the living creatures depending on the soil, but the soil in turn a vital element of the earth only so long as this community within it flourishes.

The problem that concerns us here is one that has received little consideration: What happens to these incredibly numerous and vitally necessary inhabitants of the soil when poisonous chemicals are carried down into their world, either introduced directly as soil "sterilants" or borne on the rain that has picked up a lethal contamination as it filters through the leaf canopy of forest and orchard and cropland? Is it reasonable to suppose that we can apply a broad-spectrum insecticide to kill the burrowing larval stages of a crop-destroying insect, for example, without also killing the "good" insects whose function may be the essential one of breaking down organic matter? Or can we use a nonspecific fungicide without also killing the fungi that inhabit the roots of many trees in a beneficial association that aids the tree in extracting nutrients from the soil?

The plain truth is that this critically important subject of the ecology of the soil has been largely neglected even by scientists and almost completely ignored by control men. Chemical control of insects seems to have proceeded on the assumption that the soil could and would sustain any amount of insult via the introduction of poisons without striking back. The very nature of the world of the soil has been largely ignored.

From the few studies that have been made, a picture of the impact of pesticides on the soil is slowly emerging.

Under some conditions, the chemical conversions and transformations that lie at the very heart of the living world are affected. Nitrification, which makes atmospheric nitrogen available to plants, is an example.

The herbicide 2,4-D causes a temporary interruption of nitrification. In recent experiments in Florida, lindane, heptachlor, and BHC (benzene hexachloride) reduced nitrification after only two weeks in soil; BHC and DDT had significantly determined effects a year after treatment.

Sometimes the problem is one of upsetting that delicate balance of populations by which nature accomplishes far-reaching aims. Explosive increases in some kinds of soil organisms have occurred when others have been reduced by insecticides, disturbing the relation of predator to prey. Such changes could easily alter the metabolic activity of the soil and affect its productivity. They could also mean that potentially harmful organisms, formerly held in check, could escape from their natural controls and rise to pest status.

One of the most important things to remember about insecticides in soil is their long persistence, measured not in months but in years.

Arsenic provides a classic case of the virtually permanent poisoning of the soil. Although arsenic as a spray on growing tobacco has been largely replaced by the synthetic organic insecticides since the mid 40's, the arsenic content of cigarettes made from American-grown tobacco increased more than 300 percent between the years 1932 and 1952.

Later studies have revealed increases of as much as 600 percent.

Dr. Henry S. Satterlee, an authority on arsenic toxicology, says that although organic insecticides have been largely substituted for arsenic, the tobacco plants continue to pick up the old poison, for the soils of tobacco plantations are now thoroughly impregnated with residues of a heavy and relatively insoluble poison, arsenate of lead. This will continue to release arsenic in soluble form.

The soil of a large proportion of the land planted to tobacco has been subjected to "cumulative and well-nigh permanent poisoning," according to Dr. Satterlee.

Tobacco grown in the eastern Mediterranean countries where arsenical insecticides are not used has shown no such increase in arsenic content.

We are therefore confronted with a second problem. We must not only be concerned with what is happening to the soil; we must wonder to what extent insecticides are absorbed from contaminated soils and introduced into plant tissues.

This very sort of contamination created endless problems for at least one leading manufacturer of baby foods who was unwilling to buy any fruits or vegetables on which toxic insecticides have been used. The chemical that caused him the most trouble was benzene hexachloride (BHC), which is taken up by the roots and tubers of plants, advertising its presence by a musty taste and odor.

Sweet potatoes grown on California fields where BHC had been used two years earlier contained residues and had to be rejected. In one year, in which the firm had contracted in South Carolina for its total requirements of sweet potatoes, so large a proportion of the acreage was found to be contaminated that the company was forced to buy in the open market at a considerable financial loss.

Over the years a variety of fruits and vegetables, grown in various states, have had to be rejected. The most stubborn problems were concerned with peanuts. In the southern states peanuts are usually grown in rotation with cotton, on which BHC is extensively used. Peanuts grown later in this soil pick up considerable amounts of the insecticide. Actually, only a trace is enough to incorporate the telltale musty odor and taste. The chemical penetrates the nuts and cannot be removed.

Sometimes the menace is to the crop itself—a menace that remains as long as the insecticide contamination is in the soil. Some insecticides affect sensitive plants such as beans, wheat, barley or rye, retarding root development or depressing growth of seedlings.

As applications of pesticides continue and the virtually indestructible residues continue to build up in the soil, it is almost certain that we are heading for trouble. This was the consensus of a group of specialists who met at Syracuse University in 1960 to discuss the ecology of the soil. These men summed up the hazards of using "such potent and little understood tools" as chemicals and radiation: "A few false moves on the part of man may result in destruction of soil productivity and the arthropods may well take over."

The chemical weed killers are a bright new toy. They work in a spectacular way; they give a giddy sense of power over

nature to those who wield them, and as for the long-range and less obvious effects—these are easily brushed aside as the baseless imaginings of pessimists.

The "agricultural engineers" speak blithely of "chemical plowing" in a world that is urged to beat its plowshares into spray guns. The town fathers of a thousand communities lend willing ears to the chemical salesmen and the eager contractors who will rid the roadsides of "brush"—for a price. It is cheaper than mowing, is the cry. So, perhaps, it appears in the neat rows of figures in the official books; but were the true costs entered, in the many equally valid debits we shall presently consider, the wholesale broadcasting of chemicals would be seen to be more costly in dollars as well as infinitely damaging to the long-range health of the landscape and to all the varied interests that depend on it.

Take for instance, that commodity prized by every chamber of commerce throughout the land—the good will of vacationing tourists. There is a steadily growing chorus of outraged protest about the disfigurement of once beautiful roadsides by chemical sprays, which substitute a sere expanse of brown, withered vegetation for the beauty of fern and wildflower, of native shrubs adorned with blossom or berry.

"We are making a dirty, brown, dying-looking mess along the sides of our roads," a New England woman wrote angrily to her newspaper. "This is not what the tourists expect, with all the money we are spending advertising the beautiful scenery."

In the summer of 1960 conservationists from many states converged on a peaceful Maine island to witness its presentation to the National Audubon Society by its owner, Millicent Todd Bingham. The focus that day was on the preservation of the natural landscape and of the intricate web of life whose interwoven strands lead from microbes to man. But in the background of all the conversations among the visitors to the island was indignation at the despoiling of the roads they had traveled.

Once it had been a joy to follow those roads through the evergreen forests, roads lined with bayberry and sweet fern, alder and huckleberry. Now all was brown desolation. One of the conservationists wrote of that August pilgrimage to a Maine island: "I returned . . . angry at the desecration of the Maine roadsides. Where, in previous years, the highways were bordered with wildflowers and attractive shrubs, there were only the scars of dead vegetation for mile after mile. . . . As an economic proposition, can Maine afford the loss of tourist good will that such sights induce?"

Maine roadsides are merely one example, though a particularly sad one for those of us who have a deep love for the beauty of that state, of the senseless destruction that is going on in the name of roadside brush control throughout the nation.

The irony of this all-out chemical assault on roadsides and utility rights-of-way is twofold. It is perpetuating the problem it seeks to correct, for as experience has clearly shown, the blanket application of herbicides does not permanently control roadside "brush" and the spraying has to be repeated year after year. And as a further irony, we persist in doing this despite the fact that a perfectly sound method of selective spraying is known, which can achieve long-term vegetational control and eliminate repeated spraying in most types of vegetation.

The object of brush control along roads and rights-of-way is not to sweep the land clear of everything but grass; it is, rather, to eliminate plants ultimately tall enough to present an obstruction to drivers' vision or interference with wires on rights-of-way. This means, in general, trees. Most shrubs are low enough to present no hazard; so, certainly, are ferns and wildflowers.

Selective spraying was developed by Dr. Frank Egler during a period of years at the American Museum of Natural History as director of a Committee for Brush Control Recommendations for Rights-of-Way. It took advantage of the inherent stability of nature, building on the fact that most communities of shrubs are strongly resistant to invasion by trees. By comparison, grasslands are easily invaded by tree seedlings.

The object of selective spraying is to eliminate the tall woody plants by direct treatment and to preserve all other vegetation. One treatment may be sufficient, with a possible followup for extremely resistant species; thereafter the shrubs assert control and the trees do not return. The best and cheapest controls for vegetation are not chemicals but other plants.

The method has been tested in research areas scattered throughout the eastern United States. Results show that once properly treated, an area becomes stabilized, requiring no respraying for at least 20 years. The spraying can often be done by men on foot, using knapsack sprayers, and having complete control over their material. There is no blanket spraying.

Treatment is directed only to trees and any exceptionally tall shrubs that must be eliminated. The integrity of the environment is thereby preserved, the enormous value of the wildlife habitat remains intact, and the beauty of shrub and fern and wildflower has not been sacrificed.

Here and there the method of vegetation management by selective spraying has been adopted. For the most part, entrenched custom dies hard and blanket spraying continues to thrive. It thrives, surely, only because the facts are not known. When taxpayers understand that the bill for spraying the town roads should come due only once a generation instead of once a year, they will surely rise up and demand a change of method.

As man proceeds toward his announced goal of the conquest of nature, he has written a depressing record of destruction, directed not only against the earth he inhabits but against the life that shares it with him.

The history of the recent centuries has its black passages—the slaughter of the buffalo on the western plains, the massacre of the shorebirds by the market gunners, the near-extermination of the egrets for their plumage.

Now, to these and others like them, we are adding a new chapter and a new kind of havoc—the direct killing of birds, mammals, fishes, and indeed practically every form of wildlife by chemical insecticides indiscriminately sprayed on the land.

Under the philosophy that now seems to guide our destinies, nothing must get in the way of the man with the spray gun. The incidental victims of his crusade against insects count as nothing; if robins, pheasants, raccoons, cats, or even livestock happen to inhabit the same bit of earth as the target insects and to be hit by the rain of insect-killing poisons no one must protest.

The citizen who wishes to make a fair judgment of the question of wildlife loss is today confronted with a dilemma. On the one hand conservationists and many wildlife biologists assert that the losses have been severe and in some cases even catastrophic. On the other hand the control agencies tend to deny flatly and categorically that such losses have occurred, or that they are of any importance if they have. Which view are we to accept?

The credibility of the witness is of first importance. The professional wildlife biologist on the scene is certainly best qualified to discover and interpret wildlife loss.

The entomologist, whose specialty is insects, is not so qualified by training, and is not psychologically disposed to look for undesirable side effects of his control program. Yet it is the control men in state and federal governments—and of course the chemical manufacturers—who steadfastly deny the facts reported by the biologists and declare they see little evidence of harm to wildlife.

Like the priest and the Levite in the biblical story, they choose to pass by on the other side and to see nothing. Even if we charitably explain their denials as due to the shortsightedness of the specialist and the man with an interest this does not mean we must accept them as qualified witnesses.

The question is whether any civilization can wage relentless war on life without destroying itself, and without losing the right to be called civilized.

Over increasingly large areas of the United States, spring now comes unheralded by the return of the birds, and the early mornings are strangely silent where once they were filled with song. This sudden silencing of the song of birds, this obliteration of the color and beauty and interest they lend to our world have come about swiftly, insidiously, and unnoticed by those whose communities are as yet unaffected.

To millions of Americans, the season's first robin means that the grip of winter is broken. Its coming is an event reported in newspapers and told eagerly at the breakfast table. And as the number of migrants grows and the first mists of green appear in the woodlands, thousands of people listen for the first dawn chorus of the robins throbbing in the early morning light. But now all is changed, and not even the return of the birds may be taken for granted.

The survival of the robin, and indeed of many other species as well, seems fatefully linked with the American elm, a tree that is part of the history of thousands of towns from the Atlantic to the Rockies, gracing their streets and their village squares and college campuses with majestic leafy archways of green.

Now the elms are stricken with a disease that affects them throughout their range, a disease so serious that many experts believe all efforts to save the elms will in the end be futile. It would be tragic to lose the elms, but it would be doubly tragic if, in vain efforts to save them, we plunge vast segments of our bird populations into the night of extinction. Yet this is precisely what is threatened.

The so-called Dutch elm disease entered the United States from Europe about 1930 in elm burl logs imported for the veneer industry. It is a fungus disease; the organism invades the water-conducting vessels of the tree, spreads by spores carried in the flow of sap, and by its poisonous secretions as well as by mechanical clogging causes the branches to wilt and the tree to die. The disease is spread from diseased to healthy trees by elm bark beetles.

The galleries which the insects have tunneled out under the bark of dead trees become contaminated with spores of the invading fungus, and the spores adhere to the insect body and are carried wherever the beetle flies.

Efforts to control the fungus disease of the elms have been directed largely toward control of the carrier insect. In community after community, especially throughout the strongholds of the American elm, the Midwest and New England, intensive spraying has become a routine procedure.

The robins are only one part of the chain of devastation linked to the spraying of the elms, even as the elm program is only one of the multitudinous spray programs that cover our land with poisons. Heavy mortality has occurred among about 90 species of birds, including those most familiar to suburbanites and amateur naturalists. The populations of nesting birds in general have declined as much as 90 percent in some of the sprayed towns.

The dormant sprays applied to the elms in the fall, sending the poison into every little crevice in the bark, are probably responsible for the severe reduction observed in the number of chickadees, nuthatches, titmice, woodpeckers and brown creepers.

The food of ground-feeding birds like thrushes and sparrows has been poisoned, along with that of such treetop feeders as kinglets and warblers.

The feeding habits of all these birds not only make them especially vulnerable to insect sprays but also make their loss a deplorable one for economic as well as less tangible reasons.

Various scientific studies have established the critical role of birds in insect control in various situations. Thus, woodpeckers are the primary control of the Engelmann spruce beetle, reducing its populations from 45 to 98 percent, and are important in the control of the codling moth in apple orchards. Chickadees and other winter-resident birds can protect orchards against the cankerworm.

But what happens in nature is not allowed to happen in the modern, chemical-drenched world, where spraying destroys not only the insects but their principal enemy, the birds. To the public the choice may easily appear to be one of stark black-or-white simplicity: Shall we have birds or shall we have elms? But it is not as simple as that, and by one of the ironies that abound throughout the field of chemical control we may very well end by having neither.

Spraying is killing the birds but it is not saving the elms. The illusion that salvation of the elms lies at the end of a spray nozzle is a dangerous will-o'-the-wisp that is leading one community after another into a morass of heavy expenditures, without producing lasting results.

In Urbana, Illinois, where the University of Illinois is located, Dutch elm disease first appeared in 1951. Spraying was undertaken in 1953. By 1959, in spite of six years' spraying, the university campus had lost 86 percent of its elms, half of them victims of Dutch elm disease.

In Toledo, Ohio, a similar experience caused the Superintendent of Forestry, Joseph A. Sweeney, to take a realistic look at the results of spraying. Spraying was begun there in 1953 and continued through 1959. Meanwhile, however, Mr. Sweeney had noticed that a city-wide infestation of the cottony maple scale was worse after the spraying recommended by "the books and the authorities" than it had been before.

Sweeney decided to review the results of spraying for Dutch elm disease for himself. His findings shocked him. In the city of Toledo, he found, "the only areas under any control were the areas where we used some promptness in removing the diseased or brood trees. Where we depended on spraying the disease was out of control. In the country where nothing has been done the disease has not spread as fast as it has in the city. This indicates that spraying destroys any natural enemies.

"We are abandoning spraying for the Dutch elm disease. This has brought me into conflict with the people who back any recommendations by the United States Department of Agriculture but I have the facts and will stick with them."

It is difficult to understand why these midwestern towns, to which the elm disease spread only rather recently, have so unquestioningly embarked on ambitious and expensive spraying programs, apparently without waiting to inquire into the experience of other areas that have had longer acquaintance with the problem.

New York State, for example, has had the longest history of continuous experience with Dutch elm disease. And New York State today has a most impressive record of containing and suppressing the disease. Yet it has not relied upon spraying. In fact, its agricultural extension service does not recommend spraying as a community method of control.

How, then, has New York achieved its fine record? From the early years of the battle for the elms to the present time, it has relied upon rigorous sanitation, or the prompt removal and destruction of all diseased or infected wood. In the beginning some of the results were disappointing, but this was because it was not at first understood that not only diseased trees but all elm wood in which the beetles might breed must be destroyed. Infected elm wood, after being cut and stored for firewood, will release a crop of fungus-carrying beetles unless burned before late April.

New York entomologists have learned by experience what kinds of beetle-breeding material have real importance in the spread of the disease. By concentrating on this dangerous material, it has been possible not only to get good results, but to keep the cost of the sanitation program within reasonable limits. By 1950 the incidence of Dutch elm disease in New York City had been reduced to 2/10 of 1 percent of the city's 55,000 elms. A sanitation program was launched in Westchester County in 1942. During the next 14 years the average annual loss of elms was only 2/10 of 1 percent a year.

What has happened in Syracuse is especially impressive. There, no effective program was in operation before 1957. Between 1951 and 1956 Syracuse lost nearly 3,000 elms. Then, under the direction of Howard C. Miller of the New York State University College of Forestry, an intensive drive was made to remove all diseased elm trees and all possible sources of beetle-breeding elm wood. The rate of loss is now well below 1 percent a year.

The economy of the sanitation method is stressed by New York experts in Dutch elm disease control. "In most cases

the actual expense is small compared with the probable saving," says J. G. Matthysse of the New York State College of Agriculture. "If it is a case of a dead or broken limb, the limb would have to be removed eventually, as a precaution against possible property damage or personal injury. If it is a fuel-wood pile, the wood can be used before spring, the bark can be peeled from the wood, or the wood can be stored in a dry place. In the case of dying or dead elm trees, the expense of prompt removal to prevent Dutch elm disease spread is usually no greater than would be necessary later, for most dead trees in urban regions must be removed eventually."

The situation with regard to Dutch elm disease is therefore not entirely hopeless provided informed and intelligent measures are taken. While it cannot be eradicated by any means now known, once it has become established in a community, it can be suppressed and contained within reasonable bounds by sanitation, and without the use of methods that are not only futile but involve tragic destruction of bird life.

Other possibilities lie within the field of forest genetics, where experiments offer hope of developing a hybrid elm resistant to Dutch elm disease. The European elm is highly resistant, and many of them have been planted in Washington, D.C. Even during a period when a high percentage of the city's elms were affected, no cases of Dutch elm disease were found among these trees.

Replanting through an immediate tree nursery and forestry program is being urged in communities that are losing large numbers of elms. This is important, and although such programs might well include the resistant European elms, they should aim at a variety of species so that no future epidemic could deprive a community of its trees.

The key to a healthy plant or animal community lies in what the British ecologist Charles Elton calls "the conservation of variety." What is happening now is in large part a result of the biological unsophistication of past generations. Even a generation ago no one knew that to fill large areas with a single species of tree was to invite disaster. And so whole towns lined their streets and dotted their parks with elms, and today the elms die and so do the birds.

The pesticide threat to fishes may be divided into three parts. One relates to the fishes of running streams in northern forests and to the single problem of forest spraying. It is confined almost entirely to the effects of DDT. Another is vast, sprawling, and diffuse, for it concerns the many different kinds of fishes—bass, sunfish, crappies, suckers, and others—that inhabit many kinds of waters, still or flowing, in many parts of the country. It also concerns almost the whole gamut of insecticides now in agricultural use, although a few principal offenders like endrin, toxaphene, dieldrin, and heptachlor can easily be picked out.

Still another problem must now be considered largely in terms of what we may logically suppose will happen in the future, because the studies that will disclose the facts are only beginning to be made. This has to do with the fishes of salt marshes, bays, and estuaries.

It was inevitable that serious destruction of fishes would follow the widespread use of the new organic pesticides. Fishes are almost fantastically sensitive to the chlorinated hydrocarbons that make up the bulk of modern insecticides. And when millions of tons of poisonous chemicals are applied to the surface of the land, it is inevitable that some of them will find their way into the ceaseless cycle of waters moving between land and sea.

Reports of fish kills, some of disastrous proportions, have now become so common that the United States Public Health Service has set up an office to collect such reports from the states as an index of water pollution.

This is a problem that concerns a great many people. Some 25 million Americans look to fishing as a major source of recreation and another 15 million are at least casual anglers. These people spend $3 billion annually for licenses, tackle, boats, camping equipment, gasoline and lodgings. Anything that deprives them of their sport will also reach out and affect a large number of economic interests. The commercial fisheries represent such an interest, and even more importantly, an essential source of food. Inland and coastal fisheries (excluding the offshore catch) yield an estimated 3 billion pounds a year. Yet the invasion of streams, ponds, rivers and bays by pesticides is now a threat to both recreational and commercial fishing.

Examples of the destruction of fish by agricultural crop sprayings and dustings are everywhere to be found. In California, for example, the loss of some 60,000 game fish, mostly bluegill and other sunfish, followed an attempt to control the rice-leaf miner with dieldrin.

In Pennsylvania fish have been killed in numbers by endrin, used in orchards to combat mice. The use of chlordane for grasshopper control on the high western plains has been followed by the death of many stream fish.

Probably no other agricultural program has been carried out on so large a scale as the dusting and spraying of millions of acres of land in southern United States to control the fire ant.

Heptachlor, the chemical chiefly used, is only slightly less toxic to fish than DDT. Dieldrin, another fire ant poison, has a well-documented history of extreme hazard to all aquatic life. Only endrin and toxaphene represent a greater danger to fish.

All areas within the fire ant control area, whether treated with heptachlor or dieldrin, reported disastrous effects on aquatic life. A few excerpts will give the flavor of the reports from biologists who studied the damage: From Texas, "Heavy loss of aquatic life despite efforts to protect canals," "Dead fish . . . were present in all treated water," "Fish kill was heavy and continued for over three weeks." From Alabama, "Most adult fish were killed (in Wilcox County) within a few days after treatment. The fish in temporary waters and small tributary streams appeared to have been completely eradicated."

In Louisiana, farmers complained of loss in farm ponds. Along one canal more than 500 dead fish were seen floating or lying on the bank on a stretch of less than a quarter of a mile. In another parish 150 dead sunfish could be found for every four that remained alive. Five other species appeared to have been wiped out completely.

In Florida, fish from ponds in a treated area were found to contain residues of heptachlor and a derived chemical, heptachlor epoxide. Included among these fish were sunfish and bass, which of course are favorites of anglers and commonly find their way to the dinner table. Yet the chemicals they contained are among those the Food and Drug Administration considers too dangerous for human consumption, even in minute quantities.

So extensive were the reported kills of fish, frogs, and other life of the waters that the American Society of Ichthyologists and Herpetologists, a venerable scientific organization devoted to the study of fishes, reptiles and amphibians, passed a resolution in 1958 calling on the Department of Agriculture and the associated state agencies to cease "aerial distribution of heptachlor, dieldrin and equivalent poisons—before irreparable harm is done."

The Society called attention to the great variety of species of fish and other forms of life inhabiting the southeastern part of the United States, including species that occur nowhere else in the world. "Many of these animals," the Society warned, "occupy only small areas and therefore might readily be completely exterminated."

Fishes of the southern states have also suffered heavily from insecticides used against cotton insects. The summer of 1950 was a season of disaster in the cotton-growing country of northern Alabama. Before that year, only limited use had been made of organic insecticides for the control of the boll weevil. But in 1950 there were many weevils because of a series of mild winters, and so an estimated 80 to 95 percent of the farmers, on the urging of the county agents, turned to the use of insecticides. The chemical most popular with the farmers was toxaphene, one of the most destructive to fishes.

Rains were frequent and heavy that summer. They washed the chemicals into the streams, and as this happened the farmers applied more. An average acre of cotton that year received 63 pounds of toxaphene. Some farmers used as much as 200 pounds per acre; one, in an extraordinary excess of zeal, applied more than a quarter of a ton to the acre.

The results could easily have been foreseen. What happened in Flint Creek, flowing through 50 miles of Alabama cotton country before emptying into Wheeler Reservoir, was typical of the region.

On August 1, torrents of rain descended on the Flint Creek watershed. In trickles, in rivulets, and finally in floods the water poured off the land into the streams. The water level rose six inches in Flint Creek. By the next morning it was obvious that a great deal more than rain had been carried into the stream. Dead fish floated down all day.

This was but the prelude to more, for each rain washed more of the insecticide into the river, killing more fish. The rain of August 10 resulted in such a heavy fish kill throughout the river that few remained to become victims of the next surge of poison into the stream, which occurred on August 15. But evidence of the deadly presence of the chemicals was obtained by placing test goldfish in cages in the river; they were dead within a day.

The doomed fish of Flint Creek included large numbers of white crappies, a favorite among anglers. Dead bass and sunfish were also found, occurring abundantly in Wheeler Reservoir, into which the creek flows. All the rough-fish population of these waters was destroyed also—the carp, buffalo, drum, gizzard shad and catfish. None showed signs of disease—only the erratic movements of the dying and a strange deep wine color of the gills.

In the warm enclosed waters of farm ponds, conditions are very likely to be lethal for fish when insecticides are applied in the vicinity. As many examples show, the poison is carried in by rains and runoff from surrounding lands. Sometimes the ponds receive not only contaminated runoff but also a direct dose as crop-dusting pilots neglect to shut off the duster in passing over a pond.

Even without such complications, normal agricultural use subjects fish to far heavier concentrations of chemicals than would be required to kill them. In other words, a marked reduction in the poundages used would hardly alter the lethal situation, for applications of over 0.1 pound per acre to the pond itself are generally considered hazardous. And the poison, once introduced, is hard to get rid of.

One pond that had been treated with DDT to remove unwanted shiners remained so poisonous through repeated drainings and flushings that it killed 94 percent of the sunfish with which it was later stocked. Apparently the chemical remained in the mud of the pond bottom.

Conditions are evidently no better now than when the modern insecticides first came into use. The Oklahoma Wildlife Conservation Department stated in 1961 that reports of fish losses in farm ponds and small lakes had been coming in at the rate of at least one a week, and that such reports were increasing.

The conditions usually responsible for these losses in Oklahoma were those made familiar by repetition over the years: the application of insecticides to crops, a heavy rain, and poison washed into the ponds.

One of the most spectacular fish kills of recent years occurred in the Colorado River below Austin, Texas, in 1961. Shortly after daylight on Sunday morning, January 15, dead fish appeared in the new Town Lake in Austin and in the river for a distance of about 5 miles below the lake. None had been seen the day before.

On Monday there were reports of dead fish 50 miles downstream. By this time it was clear that a wave of some poisonous substance was moving down in the river water.

By January 21, fish were being killed 100 miles downstream near La Grange, and a week later the chemicals were doing their lethal work 200 miles below Austin. During the last week of January the locks on the Intracoastal Waterway were closed to exclude the toxic waters from Matagorda Bay and divert them into the Gulf of Mexico.

Meanwhile, investigators in Austin noticed an odor associated with the insecticides chlordane and toxaphene. It was especially strong in the discharge from one of the storm sewers. This sewer had in the past been associated with trouble from industrial wastes, and when officers of the Texas Game and Fish Commission followed it back from the lake, they noticed an odor like that of benzene hexachloride at all openings as far back as a feeder line from a chemical plant. Among the major products of this plant were DDT, benzene hexachloride, chlordane and toxaphene, as well as smaller quantities of other insecticides. The manager of the plant admitted that quantities of powdered insecticide had been washed into the storm sewer recently and, more significantly, he acknowledged that such disposal of insecticide spillage and residues had been common practice for the past 10 years.

The fact that provided the final link in the chain, however, was the discovery that a few days before the water in lake and river became lethal to fish the entire storm-sewer system had been flushed out with several million gallons of water under high pressure to clear it of debris. This flushing had undoubtedly released insecticides lodged in the accumulation of gravel, sand and rubble and carried them into the lake and thence to the river, where chemical tests later established their presence.

As the lethal mass drifted down the Colorado it carried death before it. For 140 miles downstream from the lake the kill of fish must have been almost complete. When seines were used later in an effort to discover whether any fish had escaped they came up empty.

Dead fish of 27 species were observed, totaling about 1,000 pounds to a mile of riverbank. There were channel cats, the chief game fish of the river. There were blue and flathead catfish, bullheads, four species of sunfish, shiners, dace, stone rollers, largemouth bass, carp, mullet, suckers. There were eels, gar, river carpsuckers, gizzard shad and buffalo.

The Game and Fish Commission predicted that even without further pollution the pattern of the fish population of the river would be altered for years. Some species—those existing at the limits of their natural range—might never be able to reestablish themselves, and the others could do so only with the aid of extensive stocking operations by the state.

This much of the Austin fish disaster is known, but there was almost certainly a sequel. The toxic river water was still possessed of its death-dealing power after passing more than 200 miles downstream. It was regarded as too dangerous to be admitted to the waters of Matagorda Bay, with its oyster beds and shrimp fisheries, and so the whole toxic outflow was diverted to the waters of the open Gulf. What were its effects there? And what of the outflow of scores of other rivers, carrying contaminants perhaps equally lethal?

At present our answers to these questions are for the most part only conjectures, but there is growing concern about the role of pesticide pollution in estuaries, salt marshes, bays, and other coastal waters. Not only do these areas receive the contaminated discharge of rivers but all too commonly they are sprayed directly in efforts to control mosquitoes or other insects.

From small beginnings over farmlands and forests the scope of aerial spraying has widened and its volume has increased so that it has become what a British ecologist recently called "an amazing rain of death" upon the surface of the earth.

Our attitude toward poisons has undergone a subtle change. Once they were kept in containers marked with skull and crossbones; the infrequent occasions of their use were marked with utmost care. With the development of the new organic insecticides and the abundance of surplus planes after World War II, all this was forgotten. Although today's poisons are more dangerous than any known before, they have amazingly become something to be showered down indiscriminately from the skies.

Not only the target insect or plant, but anything—human or nonhuman—within range of the chemical fallout may know the sinister touch of the poison. Not only forests and cultivated fields are sprayed, but towns and cities as well.

A good many people now have misgivings about the aerial

distribution of lethal chemicals over millions of acres, and two mass-spraying campaigns undertaken in the late 1950's have done much to increase these doubts. These were the campaigns against the gypsy moth in the northeastern states and the fire ant in the South. Neither is a native insect but both have been in this country for many years without creating a situation calling for desperate measures. Yet drastic action was suddenly taken against them, under the end-justifies-the-means philosophy that has too long directed the control divisions of our Department of Agriculture.

The gypsy moth, a native of Europe, has been in the United States for nearly a hundred years. In 1869 a French scientist, Leopold Trouvelot, accidentally allowed a few of these moths to escape from his laboratory in Medford, Massachusetts, where he was attempting to cross them with silkworms. Little by little the gypsy moth has spread throughout New England. It also occurs sporadically in New Jersey, where it was introduced in 1911 on a shipment of spruce trees from Holland, and in Michigan, where its method of entry is not known.

The New England hurricane of 1938 carried it into Pennsylvania and New York, but the Adirondacks have generally served as a barrier to its westward advance, being forested with species not attractive to it.

The task of confining the gypsy moth to the northeastern corner of the country has been accomplished by a variety of methods, and in the nearly 100 years since its arrival on this continent the fear that it would invade the great hardwood forests of the southern Appalachians has not been justified.

Thirteen parasites and predators were imported from abroad and successfully established in New England. The Agriculture Department itself has credited these importations with appreciably reducing the frequency and destructiveness of gypsy moth outbreaks. This natural control, plus quarantine measures and local spraying, achieved what the Department in 1955 described as "outstanding restriction of distribution and damage."

Yet only a year after expressing satisfaction with the state of affairs, its Plant Pest Control Division embarked on a program calling for the blanket spraying of several million acres a year with the announced intention of eventually "eradicating" the gypsy moth.

The Department's all-out chemical war on the gypsy moth began on an ambitious scale. In 1956 nearly a million acres were sprayed in the states of Pennsylvania, New Jersey, Michigan and New York. Many complaints of damage were made by people in the sprayed areas.

Conservationists became increasingly disturbed as the pattern of spraying huge areas began to establish itself. When plans were announced for spraying 3 million acres in 1957 opposition became even stronger. State and federal agriculture officials characteristically shrugged off individual complaints as unimportant.

The Long Island area included within the gypsy moth spraying in 1957 consisted chiefly of heavily populated towns and suburbs and of some coastal areas with bordering salt marsh. Nassau County, Long Island, is the most densely settled county in New York apart from New York City itself. The gypsy moth is a forest insect, certainly not an inhabitant of cities. Nor does it live in meadows, cultivated fields, gardens or marshes. Nevertheless, the planes hired by the United States Department of Agriculture and the New York Department of Agriculture and Markets in 1957 showered down the prescribed DDT-in-fuel-oil with impartiality. They sprayed truck gardens and dairy farms, fish ponds and salt marshes. They sprayed the quarter-acre lots of suburbia, drenching a housewife making a desperate effort to cover her garden before the roaring plane reached her, and showering insecticide over children at play and commuters at railway stations.

At Setauket a fine quarter horse drank from a trough in a field which the planes had sprayed; 10 hours later it was dead. Automobiles were spotted with the oily mixture; flowers and shrubs were ruined. Birds, fish, crabs, and useful insects were killed.

A group of Long Island citizens led by the world-famous ornithologist Robert Cushman Murphy had sought a court injunction to prevent the 1957 spraying. Denied a preliminary injunction, the protesting citizens had to suffer the prescribed drenching with DDT, but thereafter persisted in efforts to obtain a permanent injunction. But because the act had already been performed the courts held that the petition for an injunction was "moot."

The case was carried all the way to the Supreme Court, which declined to hear it. Justice William O. Douglas, strongly dissenting from the decision not to review the case, held that "the alarms that many experts and responsible officials have raised about the perils of DDT underline the public importance of this case."

The gypsy moth programs were marked by many acts of irresponsibility. Because the spray planes were paid by the gallon rather than by the acre there was no effort to be conservative, and many properties were sprayed not once but several times. Contracts for aerial spraying were in at least one case awarded to an out-of-state firm with no local address, which had not complied with the legal requirement of registering with state officials for the purpose of establishing legal responsibility. In this exceedingly slippery situation, citizens who suffered direct financial loss from damage to apple orchards or bees discovered that there was no one to sue.

After the disastrous 1957 spraying the program was abruptly and drastically curtailed, with vague statements about "evaluating" previous work and testing alternative insecticides. Instead of the 3½ million acres sprayed in 1957, the treated areas fell to ½ million in 1958 and to about 100,000 acres in 1959, 1960 and 1961.

During this interval, the control agencies must have found news from Long Island disquieting. The gypsy moth had reappeared there in numbers. The expensive spraying operation that had cost the Department dearly in public confidence and good will—the operation that was intended to wipe out the gypsy moth for ever—had in reality accomplished nothing at all.

Meanwhile, the Department's Plant Pest Control men had temporarily forgotten gypsy moths, for they had been busy launching an even more ambitious program in the South. The word "eradication" still came easily from the Department's mimeograph machines; this time the press releases were promising the eradication of the fire ant.

The fire ant, an insect named for its fiery sting, seems to have entered the United States from South America by way of the port of Mobile, Alabama, where it was discovered shortly after the end of World War I. By 1928 it had spread into the suburbs of Mobile and thereafter continued an invasion that has now carried it into most of the southern states.

During most of the 40-odd years since its arrival in the United States the fire ant seems to have attracted little attention. Only two states listed it among their 20 most important insect pests, and these placed it near the bottom of the list. No official or private concern seems to have been felt about the fire ant as a menace to crops or livestock.

With the development of chemicals of broad lethal powers, there came a sudden change in the official attitude toward the fire ant. In 1957 the United States Department of Agriculture launched one of the most remarkable publicity campaigns in its history. The fire ant suddenly became the target of a barrage of government releases, motion pictures, and government-inspired stories portraying it as a despoiler of southern agriculture and a killer of birds, livestock and man.

A mighty campaign was announced, in which the federal government in cooperation with the afflicted states would ultimately treat some 20 million acres in nine southern states.

"United States pesticide makers appear to have tapped a sales bonanza in the increasing numbers of broad-scale pest elimination programs conducted by the U.S. Department of Agriculture," cheerfully reported one trade journal in 1958, as the fire ant program got under way.

Never has any pesticide program been so thoroughly and deservedly damned by practically everyone except the beneficiaries of this "sales bonanza." It is an outstanding example of an ill-conceived, badly executed, and thoroughly detrimental experiment in the mass control of insects.

Against the Department's undocumented claim that the fire ant destroys crops and attacks livestock is the careful study of

the Agricultural Experiment Station in the state that has had the most intimate experience with this insect, Alabama. According to Alabama scientists, "Damage to plants in general is rare. . . . No damage to livestock has been observed."

Protests were ignored and the program was launched in 1958. Studies made by biologists of state and federal wildlife agencies and several universities revealed losses running all the way up to complete destruction of wildlife on some of the treated areas. Poultry, livestock, and pets were killed. Even a year after treatment, a spring die-off of songbirds occurred. When dead birds were sent to the Fish and Wildlife Service for analysis, more than 90 percent contained residues of dieldrin or heptachlor, the poisons used in fire ant control. Bobwhite quail were virtually eliminated on treated areas. Wild and domestic turkeys were reduced in numbers and seemed to have become sterile.

By 1959 several of the southern states began to show increasing reluctance to continue the program, being alarmed and angry at the damage done by the chemicals. Moreover, in the words of a Louisiana official, "The imported fire ant eradication program . . . is thus far a failure. There are more infested acres in Louisiana now (in 1962) than when the program began."

The contamination of our world is not alone a matter of mass spraying. Indeed, for most of us this is of less importance than the innumerable small-scale exposures to which we are subjected day by day, year after year.

Like the constant dripping of water that in turn wears away the hardest stone, this birth-to-death contact with dangerous chemicals may in the end prove disastrous.

Each of these recurrent exposures, no matter how slight, contributes to the progressive buildup of chemicals in our bodies and so to cumulative poisoning. Probably no person is immune to contact with this spreading contamination unless he lives in the most isolated situation imaginable. Lulled by the soft sell and the hidden persuader, the average citizen is seldom aware of the deadly materials with which he is surrounding himself; indeed, he may not realize he is using them at all.

So thoroughly has the age of poisons become established that anyone may walk into a store and, without questions being asked, buy substances of far greater death-dealing power than the medicinal drug for which he may be required to sign a "poison book" in the pharmacy next door.

A few minutes' research in any supermarket is enough to alarm the most stout-hearted customer—provided, that is, he has even a rudimentary knowledge of the chemicals presented for his choice.

If a huge skull and crossbones were suspended above the insecticide department the customer might at least enter it with the respect normally accorded death-dealing materials. But instead the display is homey and cheerful, and, with the pickles and olives across the aisle and the bath and laundry soaps adjoining, the rows upon rows of insecticides are displayed.

A common insecticide for household use, including assorted uses in the kitchen, is chlordane. Yet the Food and Drug Administration's chief pharmacologist has declared the hazard of living in a house sprayed with chlordane to be "very great." Other preparations contain the even more toxic dieldrin.

Use of poisons in the kitchen is made both attractive and easy. Kitchen shelf paper, white or tinted to match one's color scheme, may be impregnated with insecticide, not merely on one but on both sides. Manufacturers offer us do-it-yourself booklets on how to kill bugs. With push-button ease, one may send a fog of dieldrin into the most inaccessible nooks and crannies of cabinets, corners and baseboards.

If we are troubled by mosquitoes, chiggers, or other insect pests on our persons we have a choice of innumerable lotions, creams and sprays for application to clothing or skin. Although we are warned that some of these will dissolve varnish, paint, and synthetic fabrics, we are presumably to infer that the human skin is impervious to chemicals. To make certain that we shall at all times be prepared to repel insects, an exclusive New York store advertises a pocket-sized insecticide dispenser, suitable for the purse or for beach, golf or fishing gear.

We can polish our floors with a wax guaranteed to kill any insect that walks over it. We can hang strips impregnated with the chemical lindane in our closets and garment bags or place them in our bureau drawers for a half year's freedom from worry over moth damage. The advertisements contain no suggestion that lindane is dangerous. Neither do the ads for an electronic device that dispenses lindane fumes—we are told that it is safe and odorless. Yet the truth of the matter is that the American Medical Association considers lindane vaporizers so dangerous that it conducted an extended campaign against them in its *Journal.*

The Department of Agriculture, in a Home and Garden Bulletin, advises us to spray our clothing with oil solutions of DDT, dieldrin, chlordane, or any of several other moth killers. If excessive spraying results in a white deposit of insecticide on the fabric, this may be removed by brushing, the Department says, omitting to caution us to be careful where and how the brushing is done. All these matters attended to, we may round out our day with insecticides by going to sleep under a mothproof blanket impregnated with dieldrin.

Gardening is now firmly linked with the super poisons. Every hardware store, garden-supply shop, and supermarket has rows of insecticides for every conceivable horticultural situation. Those who fail to make wide use of this array of lethal sprays and dusts are by implication remiss, for almost every newspaper's garden page and the majority of the gardening magazines take their use for granted.

So extensively are even the rapidly lethal organic phosphorus insecticides applied to lawns and ornamental plants that in 1960 the Florida State Board of Health found it necessary to forbid the commercial use of pesticides in residential areas by anyone who had not first obtained a permit and met certain requirements. A number of deaths from parathion had occurred in Florida before this regulation was adopted.

Little is done, however, to warn the gardener or homeowner that he is handling extremely dangerous materials. On the contrary, a constant stream of new gadgets makes it easier to use poisons on lawn and garden—and increase the gardener's contact with them.

One may get a jar-type attachment for the garden hose, for example, by which such extremely dangerous chemicals as chlordane or dieldrin are applied as one waters the lawn. Such a device is not only a hazard to the person using the hose; it is also a public menace.

The New York Times found it necessary to issue a warning on its garden page to the effect that unless special protective devices were installed poisons might get into the water supply by back siphonage. Considering the number of such devices that are in use, and the scarcity of warnings such as this, do we need to wonder why our public waters are contaminated?

As an example of what may happen to the gardener himself, we might look at the case of a physician—an enthusiastic spare-time gardener—who began using DDT and then malathion on his shrubs and lawn, making regular weekly applications. Sometimes he applied the chemicals with a hand spray, sometimes with an attachment to his hose. In doing so, his skin and clothing were often soaked with spray. After about a year of this sort of thing, he suddenly collapsed and was hospitalized. Examination of a biopsy specimen of fat showed an accumulation of 23 parts per million of DDT. There was extensive nerve damage, which his physicians regarded as permanent. As time went on he lost weight, suffered extreme fatigue, and experienced a peculiar muscular weakness, a characteristic effect of malathion. All of these persisting effects were severe enough to make it difficult for the physician to carry on his practice.

Besides the once innocuous garden hose, power mowers also have been fitted with devices for the dissemination of pesticides, attachments that will dispense a cloud of vapor as the home-

owner goes about the continual task of mowing his lawn.

So to the potentially dangerous fumes from gasoline are added the finely divided particles of whatever insecticide the probably unsuspecting suburbanite has chosen to distribute, raising the level of air pollution above his own grounds to something few cities could equal.

The question of chemical residues on the food we eat is a hotly debated issue. The existence of such residues is either played down by the industry as unimportant or is flatly denied. Simultaneously, there is a strong tendency to brand as fanatics or cultists all who are so perverse as to demand that their food be free of insect poisons. In all this cloud of controversy, what are the actual facts?

It has been medically established that, as common sense would tell us, persons who lived and died before the dawn of the DDT era (about 1942) contained no trace of DDT or any similar material in their tissues.

Samples of body fat collected from the general population between 1954 and 1956 averaged from 5.3 to 7.4 parts per million of DDT. There is some evidence that the average level has risen since then to a consistently higher figure, and individuals with occupational or other special exposures to insecticides of course store even more.

Among the general population with no known gross exposures to insecticides it may be assumed that much of the DDT stored in fat deposits has entered the body in food. To test this assumption, a scientific team from the United States Public Health Service sampled restaurant and institutional meals. Every meal sampled contained DDT. From this the investigators concluded, reasonably enough, that "few if any foods can be relied upon to be entirely free of DDT."

The quantities in such meals may be enormous. In a separate Public Health Service study, analysis of prison meals disclosed such items as stewed dried fruit containing 69.6 parts per million and bread containing 100.9 parts per million of DDT!

In the diet of the average home, meats and any products derived from animal fats contain the heaviest residues of chlorinated hydrocarbons. This is because these chemicals are soluble in fat. Residues on fruits and vegetables tend to be somewhat less. These are little affected by washing—the only remedy is to remove and discard all outside leaves of such vegetables as lettuce or cabbage, to peel fruit and to use no skins or outer covering whatever. Cooking does not destroy residues.

Milk is one of the few foods in which no pesticide residues are permitted by Food and Drug Administration regulations. In actual fact, however, residues turn up whenever a check is made. They are heaviest in butter and other manufactured dairy products. A check of 461 samples of such products in 1960 showed that a third contained residues, a situation which the Food and Drug Administration characterized as "far from encouraging."

The fact that every meal we eat carries its load of chlorinated hydrocarbons is the inevitable consequence of the almost universal spraying or dusting of agricultural crops with these poisons.

If the farmer scrupulously follows the instructions on the labels, his use of agricultural chemicals will produce no residues larger than are permitted by the Food and Drug Administration.

Leaving aside for the moment the question whether these legal residues are as "safe" as they are represented to be, there remains the well-known fact that farmers very frequently exceed the prescribed dosages, use the chemical too close to the time of harvest, use several insecticides where one would do, and in other ways display the common human failure to read the fine print.

As the tide of chemicals born of the Industrial Age has arisen to engulf our environment, a drastic change has come about in the nature of the most serious public health problems.

Only yesterday mankind lived in fear of the scourges of smallpox, cholera and plague that once swept nations before them. Now our major concern is no longer with the disease organisms that once were omnipresent; sanitation, better living conditions, and new drugs have given us a high degree of control over infectious disease.

Today we are concerned with a different kind of hazard that lurks in our environment—a hazard we ourselves have introduced into our world as our modern way of life has evolved.

The new environmental health problems are multiple— created by radiation in all its forms, born of the never-ending stream of chemicals of which pesticides are a part, chemicals now pervading the world in which we live, acting upon us directly and indirectly, separately and collectively. Their presence casts a shadow that is no less ominous because it is formless and obscure, no less frightening because it is simply impossible to predict the effects of lifetime exposure to chemical and physical agents that are not part of the biological experience of man.

"We all live under the haunting fear that something may corrupt the environment to the point where man joins the dinosaurs as an obsolete form of life," says Dr. David Price of the United States Public Health Service. "And what makes these thoughts all the more disturbing is the knowledge that our fate could perhaps be sealed 20 or more years before the development of symptoms."

Where do pesticides fit into the picture of environmental disease? We have seen that they now contaminate soil, water and food, that they have the power to make our streams fishless and our gardens and woodlands silent and birdless. Man, however much he may like to pretend the contrary, is part of nature. Can he escape a pollution that is now so thoroughly distributed throughout our world?

Responsible public health officials have pointed out that the biological effects of chemicals are cumulative over long periods of time, and that the hazard to the individual may depend on the sum of the exposures received throughout his lifetime.

For these very reasons the danger is easily ignored. It is human nature to shrug off what may seem to us a vague threat of future disaster. "Men are naturally most impressed by diseases which have obvious manifestations," says a wise physician, Dr. René Dubos, "yet some of their worst enemies creep on them unobtrusively."

For each of us, this is a problem of ecology, of interrelationships, of interdependence. We poison the caddis flies in a stream and the salmon runs dwindle and die. We poison the gnats in a lake and the poison travels from link to link of the food chain and soon the birds of the lake margins become its victims. We spray our elms and the following springs are silent of robin song, not because we sprayed the robins directly but because the poison traveled, step by step, through the now familiar elm leaf-earthworm-robin cycle. These are matters of record, observable, part of the visible world around us. They reflect the web of life—or death—that scientists know as ecology.

But there is also an ecology of the world within our bodies. In this unseen world minute causes produce mighty effects; the effect, moreover, is often seemingly unrelated to the cause, appearing in a part of the body remote from the area where the original injury was sustained. "A change at one point, in one molecule even, may reverberate throughout the entire system to initiate changes in seemingly unrelated organs and tissues," says a recent summary of the present status of medical research.

We are accustomed to look for the gross and immediate effect and to ignore all else. Unless this appears promptly and in such obvious form that it cannot be ignored we deny the existence of hazard. Even research men suffer from the handicap of inadequate methods of detecting the beginnings of injury. The lack of sufficiently delicate methods to detect injury before symptoms appear is one of the great unsolved problems in medicine.

Even in the absence of sudden and dramatic symptoms, one who handles such materials is unquestionably storing up

toxic materials in his body. Storage of the chlorinated hydrocarbons is cumulative, beginning with the smallest intake. The toxic materials become lodged in all the fatty tissues of the body. When these reserves of fat are drawn upon, the poison may then strike quickly. A New Zealand medical journal recently provided an example. A man under treatment for obesity suddenly developed symptoms of poisoning. On examination his fat was found to contain stored dieldrin, which had been metabolized as he lost weight. The same thing could happen with loss of weight in illness.

The results of storage, on the other hand, could be even less obvious. Several years ago the Journal of the American Medical Association warned strongly of the hazards of insecticide storage in adipose tissue, pointing out that drugs or chemicals that are cumulative require greater caution than those having no tendency to be stored in the tissues.

The adipose tissue, we are warned, is not merely a place for the deposition of fat (which makes up about 18 percent of the body weight), but has many important functions with which the stored poisons may interfere. Furthermore, fats are very widely distributed in the organs and tissues of the whole body, even being constituents of cell membranes.

It is important to remember, therefore, that the fat-soluble insecticides become stored in individual cells, where they are in position to interfere with the most vital and necessary functions of oxidation and energy production.

One of the most significant facts about the chlorinated hydrocarbon insecticides is their effect on the liver. Of all organs in the body the liver is most extraordinary. In its versatility and in the indispensable nature of its functions it has no equal. It presides over so many vital activities that even the slightest damage to it is fraught with serious consequences. Not only does it provide bile for the digestion of fats, but because of its location and the special circulatory pathways that converge upon it, the liver receives blood directly from the digestive tract and is deeply involved in the metabolism of all the principal foodstuffs. It stores sugar in the form of glycogen and releases it as glucose in carefully measured quantities to keep the blood sugar at a normal level. It builds body proteins, including some essential elements of blood plasma concerned with blood-clotting. It maintains cholesterol at its proper level in the blood plasma, and inactivates the male and female hormones when they reach excessive levels. It is a storehouse of many vitamins, some of which in turn contribute to its own proper functioning.

Without a normally functioning liver the body would be disarmed—defenseless against the great variety of poisons that continually invade it. Some of these are normal by-products of metabolism, which the liver swiftly and efficiently makes harmless by withdrawing their nitrogen.

But poisons that have no normal place in the body may also be detoxified. The "harmless" insecticides malathion and methoxychlor are less poisonous than their relatives only because a liver enzyme deals with them, altering their molecules in such a way that their capacity for harm is lessened. In similar ways the liver deals with the majority of the toxic materials to which we are exposed.

Our line of defense against invading poisons or poisons from within is now weakened and crumbling. A liver damaged by pesticides is not only incapable of protecting us from poisons, the whole wide range of its activities may be interfered with. Not only are the consequences far-reaching, but because of their variety and the fact that they may not immediately appear they may not be attributed to their true cause.

In connection with the nearly universal use of insecticides that are liver poisons, it is interesting to note the sharp rise in hepatitis that began during the 1950's and is continuing a fluctuating climb. Cirrhosis also is said to be increasing. While it is admittedly difficult, in dealing with human beings rather than laboratory animals, to "prove" that cause A produces effect B, plain common sense suggests that the relation between a soaring rate of liver disease and the prevalence of liver poisons in the environment is no coincidence. Whether or not the chlorinated hydrocarbons are the primary cause, it seems hardly sensible under the circumstances to expose ourselves to poisons that have a proven ability to damage the liver and so presumably to make it less resistant to disease.

The whole problem of pesticide poisoning is enormously complicated by the fact that a human being, unlike a laboratory animal living under rigidly controlled conditions, is never exposed to one chemical alone. Between the major groups of insecticides, and between them and other chemicals, there are interactions that have serious potentials. Whether released into soil or water or a man's blood, these unrelated chemicals do not remain segregated; there are mysterious and unseen changes by which one alters the power of another for harm.

There is interaction even between the two major groups of insecticides usually thought to be completely distinct in their action. The power of the organic phosphates, those poisoners of the nerve-protective enzyme cholinesterase, may become greater if the body has first been exposed to a chlorinated hydrocarbon which injures the liver. This is because, when liver function is disturbed, the cholinesterase level drops below normal.

The added depressive effect of the organic phosphate may then be enough to precipitate acute symptoms. Pairs of the organic phosphates themselves may interact in such a way as to increase their toxicity a hundredfold. Or the organic phosphates may interact with various drugs, or with synthetic materials, food additives—who can say what else of the infinite number of man-made substances that now pervade our world?

To have risked so much in our efforts to mold nature to our satisfaction and yet to have failed in achieving our goal would indeed be the final irony. Yet this, it seems, is our situation. The truth, seldom mentioned but there for anyone to see, is that nature is not so easily molded and that the insects are finding ways to circumvent our chemical attacks on them.

"The insect world is nature's most astonishing phenomenon," said the Dutch biologist C. J. Briejèr, director of Holland's Plant Protection Service. "Nothing is impossible to it; the most improbable things commonly occur there. One who penetrates deeply into its mysteries is continually breathless with wonder. He knows that anything can happen, and that the completely impossible often does."

The "impossible" is now happening on two broad fronts. By a process of genetic selection, the insects are developing strains resistant to chemicals. But the broader problem, which we shall look at now, is the fact that our chemical attack is weakening the defenses inherent in the environment itself, defenses designed to keep the various species in check. Each time we breach these defenses a horde of insects pours through.

From all over the world come reports that make it clear we are in a serious predicament. At the end of a decade or more of intensive chemical control, entomologists were finding that problems they had considered solved a few years earlier had returned to plague them. And new problems had arisen as insects once present only in insignificant numbers had increased to the status of serious pests.

By their very nature chemical controls are self-defeating, for they have been devised and applied without taking into account the complex biological systems against which they have been blindly hurled. The chemicals may have been pretested against a few individual species, but not against living communities.

Two critically important facts have been overlooked in designing the modern insect control programs. The first is that the really effective control of insects is that applied by nature, not by man.

Populations are kept in check by something the ecologists call the resistance of the environment, and this has been so since the first life was created. The amount of food available, conditions of weather and climate, the presence of competing or predatory species, all are critically important.

"The greatest single factor in preventing insects from overwhelming the rest of the world is the interecine warfare which they carry out among themselves," said the entomologist Robert Metcalf. Yet most of the chemicals now used kill all insects, our friends and enemies alike.

The second neglected fact is the truly explosive power of a species to reproduce once the resistance of the environment has

been weakened. The fecundity of many forms of life is almost beyond our power to imagine.

We see the miracle of nature's control at work when the cod move through winter seas to their spawning grounds, where each female deposits several millions of eggs. The sea does not become a solid mass of cod as it would surely do if all the progeny of all the cod were to survive. The checks that exist in nature are such that out of the millions of young produced by each pair only enough, on the average, survive to adulthood to replace the parent fish.

No one knows how many species of insects inhabit the earth because so many are yet to be identified. But more than 700,000 have already been described. This means that in terms of the number of species, 70 to 80 percent of the earth's creatures are insects.

The vast majority of these insects are held in check by natural forces, without any intervention by man. If this were not so, it is doubtful that any conceivable volume of chemicals—or any other methods—could possibly keep down their populations.

The trouble is that we are seldom aware of the protection afforded by natural enemies until it fails.

The predators—insects that kill and consume other insects—are of many kinds. Some are quick and with the speed of swallows snatch their prey from the air. Others plod methodically along a stem, plucking off and devouring sedentary insects like the aphids. The yellowjackets capture soft-bodied insects and feed the juices to their young.

Ladybugs or lady beetles are among the most effective destroyers of aphids, scale insects, and other plant-eating insects. Literally hundreds of aphids are consumed by a single ladybug to stoke the little fires of energy which she requires to produce even a single batch of eggs.

Even more extraordinary in their habits are the parasitic insects. These do not kill their hosts outright. Instead, by a variety of adaptations they utilize their victims for the nurture of their own young. They may deposit their eggs within the larvae or eggs of their prey, so that their own developing young may find food by consuming the host. Some attach their eggs to a caterpillar by means of a sticky solution; on hatching, the larval parasite bores through the skin of the host. Others, led by an instinct that simulates foresight, merely lay their eggs on a leaf so that a browsing caterpillar will eat them inadvertently.

Through the circumstances of their lives, and the nature of our own wants, all these have been our allies in keeping the balance of nature tilted in our favor. Yet we have turned our artillery against our friends. The terrible danger is that we have grossly underestimated their value in keeping at bay a dark tide of enemies that, without their help, can overrun us.

The prospect of a general and permanent lowering of environmental resistance becomes grimly and increasingly real with each passing year as the number, variety, and destructiveness of insecticides grow. With the passage of time we may expect progressively more serious outbreaks of insects, both disease-carrying and crop-destroying species, in excess of anything we have ever known.

"Yes, but isn't this all theoretical?" you may ask. "Surely it won't really happen—not in my lifetime, anyway."

But it is happening, here and now. Scientific journals had already recorded some 50 species involved in violent dislocations of nature's balance by 1958. More examples are being found every year.

Sometimes the result of chemical spraying has been a tremendous upsurge of the very insect the spraying was intended to control, as when blackflies in Ontario became 17 times more abundant after spraying than they had been before.

At other times spraying, while reasonably effective against the target insect, has let loose a whole Pandora's box of destructive pests that had never previously been abundant enough to cause trouble. The spider mite, for example, has become practically a worldwide pest as DDT and other insecticides have killed off its enemies.

In the Shenandoah Valley of Virginia, a famous apple-growing region, hordes of a small insect called the red-banded leaf roller arose to plague the growers as soon as DDT began to replace arsenate of lead. Its depredations had never before been important; soon its toll rose to 50 percent of the crop.

When a wholesale application of heptachlor was made to the farmlands in Louisiana in 1957, the result was the unleashing of one of the worst enemies of the sugarcane crop—the sugarcane borer. Soon after the heptachlor treatment, damage by borers increased sharply. The chemical aimed at the fire ant had killed off the enemies of the borer.

If Darwin were alive today the insect world would delight and astound him with its impressive verification of his theories of the survival of the fittest. Under the stress of intensive chemical spraying the weaker members of the insect populations are being weeded out. Now, in many areas and among many species only the strong and fit remain to defy our efforts to control them.

Although insect resistance is a matter of concern in agriculture and forestry, it is in the field of public health that the most serious apprehensions have been felt. The relation between various insects and many diseases of man is an ancient one. The list of diseases and their insect carriers, or vectors, includes malaria and mosquitoes, typhus and body lice, plague and rat fleas, African sleeping sickness and tsetse flies, various fevers and ticks, and innumerable others.

These are important problems and must be met. No responsible person contends that insect-borne disease should be ignored. The question that has now urgently presented itself is whether it is either wise or responsible to attack the problem by methods that are rapidly making it worse. The world has heard much of the triumphant war against disease through the control of insect vectors of infection, but it has heard little of the other side of the story—the defeats, the short-lived triumphs that now strongly support the alarming view that the insect enemy has been made actually stronger by our efforts. Even worse, we may have destroyed our very means of fighting.

In the words of Dr. Briejèr: "It is more than clear that we are traveling a dangerous road. We are going to have to do some very energetic research on other control measures, measures that will have to be biological, not chemical. *Our aim should be to guide natural processes as cautiously as possible in the desired direction rather than to use brute force.*"

We stand now where two roads diverge. The road we have long been traveling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster. The other fork of the road—the one "less traveled by"—offers our last, our only chance to reach a destination that assures the preservation of our earth.

The choice, after all, is ours to make. If we have concluded that we are being asked to take senseless and frightening risks, then we should no longer accept the counsel of those who tell us that we must fill our world with poisonous chemicals; we should look about and see what other course is open to us.

A truly extraordinary variety of alternatives to the chemical control of insects is available. Some are already in use and have achieved brilliant success. Others are in the stage of laboratory testing. Still others are little more than ideas in the minds of imaginative scientists, waiting for the opportunity to put them to the test. All have this in common: they are *biological* solutions, based on understanding of the living organisms they seek to control, and of the whole fabric of life to which these organisms belong.

Some of the most fascinating of the new methods are those that seek to turn the strength of a species against itself—to use the drive of an insect's life forces to destroy it. The most spectacular of these approaches is the "male sterilization" technique developed by the chief of the United States Department of Agriculture's Entomology Research Branch, Dr. Edward Knipling, and his associates.

About a quarter of a century ago Dr. Knipling startled his colleagues by proposing a unique method of insect control. If it were possible to sterilize and release large numbers of insects, he theorized, the sterilized males would, under certain conditions, compete with the normal wild males so successfully that, after repeated releases, only infertile eggs would be produced and the population would die out.

About 1950, Dr. Knipling launched a serious effort to turn insect sterilization into a weapon that would wipe out a major insect enemy of livestock in the South, the screw-worm fly.

Beginning in August, 1954, screw-worms reared and sterilized in an Agriculture Department laboratory in Florida were flown to the island of Curaçao and released from airplanes at the rate of about 400 per square mile per week. Almost at once the number of egg masses deposited on experimental goats began to decrease, as did their fertility. Only seven weeks after the releases were started, all eggs were infertile. Soon it was impossible to find a single egg mass, sterile or otherwise. The screw-worm had indeed been eradicated on Curaçao.

The resounding success of the Curaçao experiment whetted the appetites of Florida livestock raisers for a similar feat that would relieve them of the scourge of screw-worms. In 1957 the United States Department of Agriculture and the State of Florida joined in providing funds for an eradication effort. The project involved the weekly production of about 50 million screw-worms at a specially constructed "fly factory," and the use of 20 light airplanes to fly pre-arranged flight patterns five to six hours daily, each plane carrying a thousand paper cartons, each carton containing 200 to 400 irradiated flies.

The cold winter of 1957-58, when freezing temperatures gripped northern Florida, gave an unexpected opportunity to start the program while the screw-worm populations were reduced and confined to a small area. By the time the program was considered complete at the end of 17 months, 3½ billion artificially reared, sterilized flies had been released over Florida and sections of Georgia and Alabama. The last-known animal wound infestation that could be attributed to screw-worms occurred in February, 1959. In the next few weeks several adults were taken in traps. Thereafter no trace of the screw-worm could be discovered. Its extinction in the Southeast had been accomplished—a triumphant demonstration of the worth of scientific creativity, aided by thorough basic research, persistence and determination.

Some of the most interesting of the recent work is concerned with still other ways of forging weapons from the insect's own life processes. Insects produce a variety of venoms, attractants, repellents. What is the chemical nature of these secretions? Could we make use of them as, perhaps, very selective insecticides?

Scientists at Cornell University and elsewhere are trying to find answers to some of these questions, studying the defense mechanisms by which many insects protect themselves from attack by predators, working out the chemical structure of insect secretions. Other scientists are working on the so-called "juvenile hormone," a powerful substance which prevents metamorphosis of the larval insect until the proper stage of growth has been reached.

Perhaps the most immediately useful result of this exploration of insect secretion is the development of lures or attractants. Here again, nature has pointed the way.

The gypsy moth is an especially intriguing example. The female moth is too heavy-bodied to fly. She lives on or near the ground, fluttering about among low vegetation or creeping up tree trunks. The male, on the contrary, is a strong flier and is attracted even from considerable distances by a scent released by the female from special glands. Entomologists have taken advantage of this fact for a good many years, laboriously preparing this sex attractant from the bodies of the female moths. It was then used in traps set for the males in census operations along the fringe of the insect's range. But this was an extremely expensive procedure.

Despite the much publicized infestations in the northeastern states, there were not enough gypsy moths to provide the material, and hand-collected female pupae had to be imported from Europe, sometimes at a cost of half a dollar per tip.

It was a tremendous breakthrough, therefore, when, after years of effort, chemists of the Agriculture Department recently succeeded in isolating the attractant. Following upon this discovery was the successful preparation of a closely related synthetic material from a constituent of castor oil; this not only deceives the male moths but is apparently fully as attractive as the natural substance. As little as one microgram (1/1,000,000 gram) in a trap is an effective lure.

Insects have many natural enemies—not only microbes of many kinds but other insects. The first suggestion that an insect might be controlled by encouraging its enemies is generally credited to Erasmus Darwin about 1800. Probably because it was the first generally practiced method of biological control, this setting of one insect against another is widely but erroneously thought to be the only alternative to chemicals.

Examples of successful biological control of serious pests by importing their natural enemies are to be found in some 40 countries distributed over much of the world. The advantages of such control over chemicals are obvious: it is relatively inexpensive, it is permanent, it leaves no poisonous residues. Yet biological control has suffered from lack of support.

California is virtually alone among the states in having a formal program in biological control, and many states have not even one entomologist who devotes full time to it.

Insects are beset not only by viruses and bacteria but also by fungi, protozoa, microscopic worms, and other beings from all that unseen world of minute life that, by and large, befriends mankind. For the microbes include not only disease organisms but those that destroy waste matter, make soils fertile, and enter into countless biological processes like fermentation and nitrification. Why should they not also aid in the control of insects?

In eastern forests of Canada and the United States bacterial insecticides may be one important answer to the problems of such forest insects as the budworms and the gypsy moth. In 1960 both countries began field tests with a commercial preparation of *Bacillus thuringiensis*. Some of the early results have been encouraging. In Vermont, for example, the end results of bacterial control were as good as those obtained with DDT. The main technical problem now is to find a carrying solution that will stick the bacterial spores to the needles of the evergreens. On crops this is not a problem—even a dust can be used. Bacterial insecticides have already been tried on a wide variety of vegetables, especially in California.

Meanwhile, other perhaps less spectacular work is concerned with viruses. Here and there in California fields of young alfalfa are being sprayed with a substance as deadly as any insecticide for the destructive alfalfa caterpillar—a solution containing a virus obtained from the bodies of caterpillars that have died because of infection with this exceedingly virulent disease. The bodies of only five diseased caterpillars provide enough virus to treat an acre of alfalfa. In some Canadian forests a virus that affects pine sawflies has proved so effective in control that it has replaced insecticides.

Through all these new, imaginative, and creative approaches to the problem of sharing our earth with other creatures there runs a constant theme, the awareness that we are dealing with life—with living populations and all their pressures and counterpressures, their surges and recessions. Only by taking account of such life forces and by cautiously seeking to guide them into channels favorable to ourselves can we hope to achieve a reasonable accommodation between the insect hordes and ourselves.

The "control of nature" is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man. The concepts and practices of applied entomology for the most part date from that Stone Age of science. It is our alarming misfortune that so primitive a science has armed itself with the most modern and terrible weapons, and that in turning them against the insects it has also turned them against the earth.

—Rachel Carson

NEXT MONTH'S BOOK CONDENSATION

MY LIFE WITH WILD ANIMALS

By Daniel P. Mannix

this funny Life

Here is a true story which Admiral Rickover tells on himself. Following the admiral's serious heart attack some time back, authorities at the Bethesda Naval Hospital made a routine administrative check to see if he had made arrangements for a burial plot. Since he had not, the admiral asked that the matter be looked into, specifying only that he didn't want to spend a lot of money on one.

A few days later he was informed that a plot had been located in one of the Washington cemeteries at a price of about $1,500. Testily, he asked that a much cheaper plot be found, and in due time was informed of a space available in a rather doubtful area of Washington. It was also in a rather undesirable location on a hillside, but the price was only $100.

"Oh, that'll be fine," the admiral replied with a grin. "After all, I'll be there only three days."

Paul R. Schratz
N.Y., N.Y.

While serving with the Royal Canadian Mounted Police in the Calgary district over 20 years ago, I did a great deal of work with the Sarcee Indians. When I was leaving the area, one old chief whom I had arrested a number of times for drunkenness presented me with a fancy, beaded hatband. I wore it proudly and showed it to a great number of people. A short while ago I ran into an old friend who was able to read the Indian characters on the hatband; he translated them for me: THE BIG BLUE EYED, LONG NOSED S.O.B."

W. J. Brummitt
Alberta, Canada

My wife and I were visiting friends in New Orleans and one evening attended a cocktail party with them. My wife had never visited the deep South before and she had always heard that it was a romantic place, but as the party progressed, it so far exceeded her expectations that she became a little worried.

"It's just incredible," she finally confided to the hostess. "Every man who talks to me propositions me."

"My dear, don't give it another thought," assured the older woman. "At a party in New Orleans, that's just common courtesy!"

Dan Bennett
Pacific Palisades, Calif.

Gov. Bill Brandon was one of the most popular governors the state of Alabama has ever had. Plain "Bill," his friends called him.

As a member of his legislature, I happened to be on a committee that was inspecting the State Mental Hospital at Tuscaloosa, Alabama. When we reached a large barn that was being whitewashed by the inmates, the governor asked them a lot of questions and complimented them on the job they were doing.

One of the workers, though, regarded his questions with suspicion. "You're asking a lot of questions. Who are you?"

"I'm the governor of this great state, and would like to help you in every way that I can," replied Bill.

The inmate nodded. "Okay, grab a brush."

Champ Pickens
Montgomery, Ala.

The bartender was breaking in a young man to take his place during vacation. The replacement was friendly and very talkative; there seemed no end to his store of bright jokes and youthful wit. But his patter was obviously not going over with the customers. Finally the old barman called the youngster to one side and we overheard this bit of wisdom: "Listen, kid . . . *listen*—don't talk. If these guys wanted to listen, they'd go home."

Russell T. Stambaugh
Wichita, Kans.

A sign on the back bar of the Chief Petty Officers' Club in Yokosuka, Japan, reads: "Do not despair, for soon you will leave your loved ones and return to your dependents."

Charles Hair
San Francisco, Calif.

Recently two new duplicating machines—a mimeograph and a photocopier—were installed in our offices and were placed in the care of one of our more shapely secretaries. In our office our research staffs normally work a 24-hour day while our secretarial staff works the usual 8-hour daylight shift. It soon developed that the research boys on the night shift began using the new duplicating devices and leaving a mess for the day-shift secretary to clean up. After she complained several times to the officer-in-charge, he ordered that only the secretary should use the machines.

On the door of her office he placed the following sign:

NOTICE

No one shall use the secretary's reproduction equipment without express permission of the officer-in-charge.

Name withheld at writer's request,
Alexandria, Va.

A harried department store clerk, tired of his hectic job, quit it and joined the police department. A few months later a friend asked him how he liked being a traffic cop.

"Well," he replied, "the pay and hours aren't too good, but one thing I like—the customer is always wrong."

Wilfred Beaver
Chicago 25, Ill.

My husband's brother Roger and his wife had been married for eight years and were still childless. Because ours is a prolific family, Roger used to take a terrific ribbing from the rest of the clan.

At church one time, after a christening where he'd been one of the godparents, he spoke to the priest. "Father, I hope you'll pray for my wife and me. We've been married for a long time, but have not been blessed with children."

Without batting an eye, the priest answered, "You know, Roger, it isn't done by prayer alone."

J. Teillet
Manitoba, Canada

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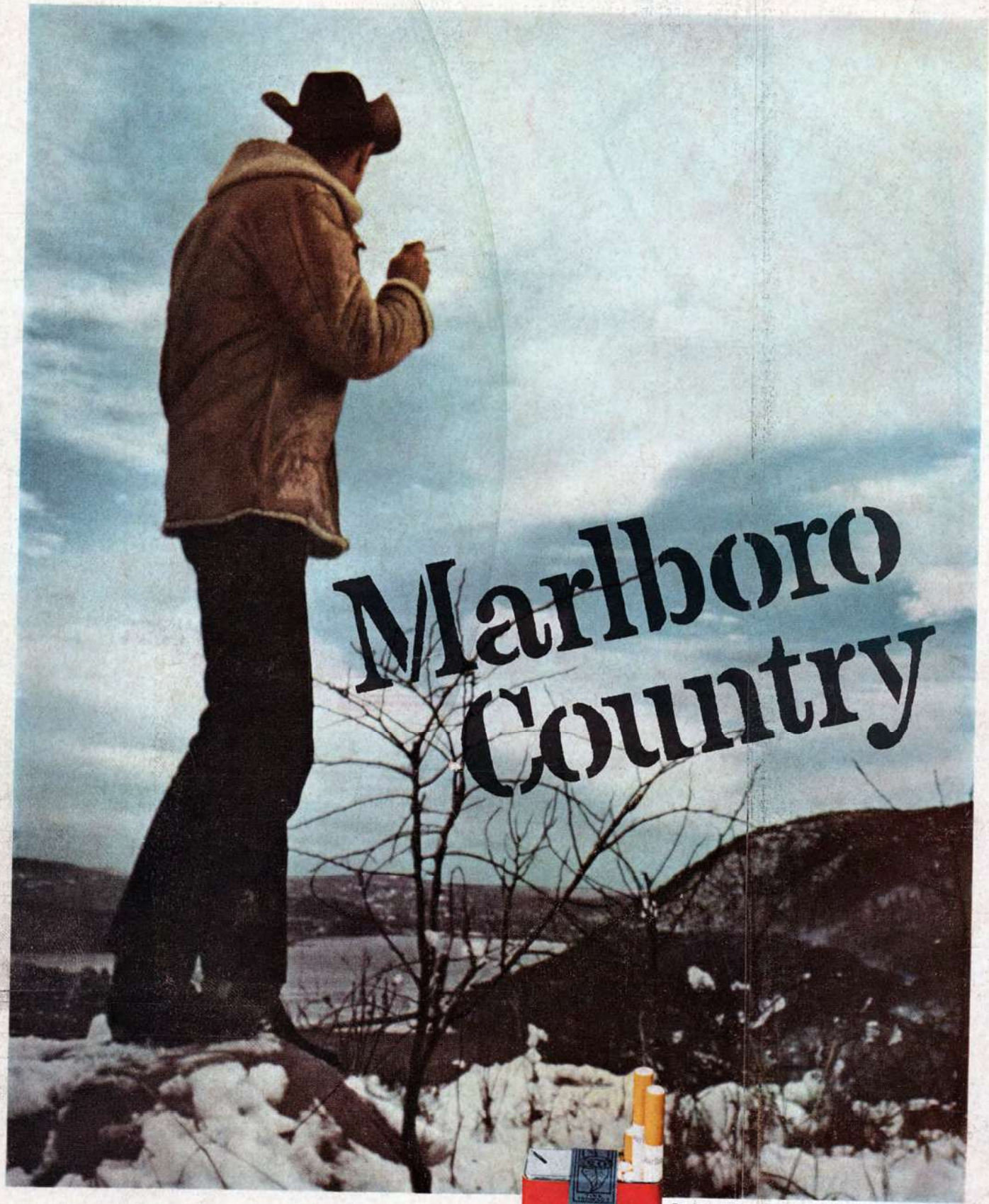

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